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A MAGAZINE FOR ARMOR ENTHUSIASTS
Volume 4 Number 6



IN THIS ISSUE:

M45 Medium Tank

Dodge Military Trucks

The Panzerfaust

Matilda Markings

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As in the past several issues, AFV-G2 is continuing to present the first complete illustrated history of the Armored Fighting Vehicles of the Italian Army. Authored by Dr. Nicola Pignato, a widely-known historian on the Armed Forces of Italy, this serialized book is available only to readers of AFV-G2. The portion of the book in this issue will be found at the center of the magazine, between pages 18 and 19, bound in with the regular pages. To remove the center supplemental sheet in this issue, use a razor blade or sharp knife to carefully slit between the staple holes in the sheet, which will then be free of the magazine. Readers may then punch the supplemental sheets with a three-ring binder punch and install them in a separate binder. When placed together with the other supplemental sheets from AFV-G2, the complete series will present a detailed history of all Italian armored vehicles, with numerous previously-unpublished photographs and 1:50th scale drawings. The sheets are separately numbered for ease of binding, and at the end of the publication, a complete index and table-of-contents will also be furnished to readers in order to complete the book.



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August 1973

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AFV's of Italy, the continuing series by Dr. Nicola Pignato. . . . Between 18 and 19.

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Cover:

Taken on Bastille Day (July 14th) of 1968, these French AMX-30 medium tanks are about to participate in the famed parade through the streets of Paris. With their crews in khaki uniform with all medals and insignia, the drab AMX's are specially cleaned and polished for the parade appearance. Note the full barrel insulation jacket that prevents distortion in the gun tube during firing.

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AFV-G2 is a magazine, published monthly for Armor enthusiasts, with the purpose of gathering and disseminating information about Armored Fighting Vehicles and their employment; to provide an opportunity for persons seriously interested in the history of Armored Fighting Vehicles, in the modeling of these AFV's and associated equipment, and in the playing of military Wargames utilizing miniature AFV's, to share ideas and items of mutual interest and to promote an interest and awareness in the subject of Armored Fighting Vehicles.

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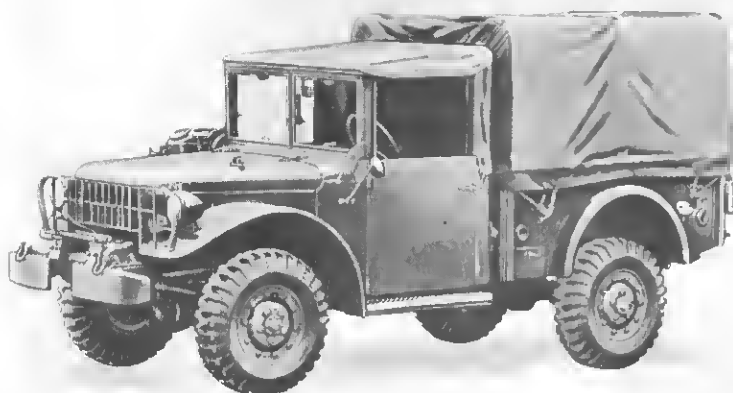
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Dodge

MILITARY TRUCKS

FROM 1939 TO THE PRESENT

by R. L. Fines



To fully understand the development and origins of the Dodge WC series vehicles, one must go back to the middle 1930's. During the years preceding World War II., the U. S. Army had no modern, series-produced all-wheel drive vehicles which were conceived in design as military machines. Some Fords, GMC's and others were in use with "bolt-on" four-wheel drive assemblies as typically produced by Marmon-Herrington. While these vehicles were serviceable and greatly more useful than standard civilian equipment, they were not really what the military needed to equip a modern, mechanized force. Accordingly, the Army established several capacity classifications for military trucks designed as all-wheel drive machines. Manufacturers were asked to submit samples and bids for series production. As a result of this competition, a number of vehicles were standardized, among which was the Dodge 1/2-ton Command Car and Weapons Carrier.

The first half-ton Dodges, while using 4x4 running gear designed and produced by Dodge, used essentially civilian bodies, modified only as necessary to accommodate heavier bumpers and brush guards. 4,640 of these machines were produced in 1939 and were designated as Series T202 by Dodge and the "VC" Series by the U. S. Army.

The second distinct variation of half-ton vehicles produced by Dodge, most of which were constructed in 1941, used the same running gear as the T202 with a combination of civilian sheet metal mated to military style fenders. A new hood and nose assembly containing a larger radiator was also a feature of these later style half-ton machines, which were designated T207 by the

Photo Above: The last (and still current) 3/4-ton military Dodge truck. Shown is the M37 3/4-ton Weapons Carrier, used typically in the post-Korean War period. Close comparison with the WC-51 will shown the changes

Dodge Company and the Series "WC" by the Army. While in production, numerous changes were made on a running basis, including seat changes and the use of military standard round instruments to replace the 1939 civilian pickup instrument clusters originally used. There were three distinct sub-series as identified by Dodge; these were designated T207, T211 and T215. The Army continued the "WC" nomenclature, assigning higher numbers to the later vehicles in different series. A total of some 82,000 of the 1/2-ton trucks were produced. By the end of the production run, it had become apparent that the 1/2-ton Weapons Carrier was a good, serviceable truck, but lacked the ability to stand up under the service imposed upon it by the military. U-Joints in the drive-train were too light, and civilian components wore badly. Consequently, the Army created another capacity classification, the 3/4-ton. Some of the attributes of this new truck, designated as the T214 by Dodge, were to be as follows:

1. Lower, or reduced silhouette.
2. Cargo body better suited to moving troops than the civilian pick-up box used in the half-tons.
3. Better towing ability through a higher number ratio final drive.
4. Better off-road capability, through the use of larger-diameter tires.
5. Stronger running gear (mainly U-Joints, drive-shafts and springs).
6. Military pattern "bullet proof" wheels with bolt-on lock rings.
7. Larger (very slightly) engine (from 217 cu. in. to 232 cu. in.; the change actually took place during 1/2-ton truck production).
8. Increased Winch capacity.

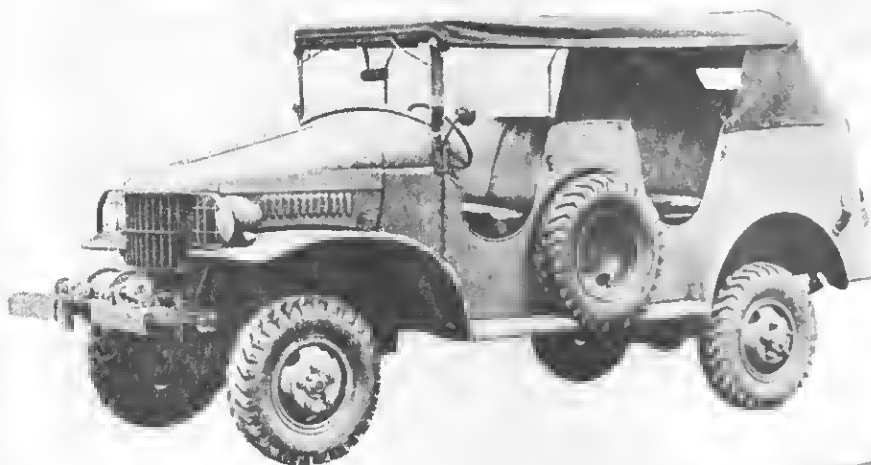
Several other manufacturers, notably Ford, submitted prototypes of the 3/4-ton Weapons Carrier. Dodge, however, was given the contract, based on previous experience plus the fact that their truck was a better product.

By the Spring of 1942, the last of the 1/2-ton trucks were leaving the Mound Road plant, along with the first of the 3/4-ton machines. It should be stressed that the production of the 1/2-ton did not continue, and that all of the 1/2-ton variants remained in Army service (until worn-out or scrapped) as vehicle supplies in the Army remained critical until war's end. While some authors have indicated that 1/2-ton trucks were used by the Navy and Marine Corps, close examination will reveal that these vehicles were 1-ton International trucks, which closely resembled their smaller Dodge counterparts. Some 1/2-ton and 3/4-ton trucks did enter Navy service in the post war period after being declared surplus to the Army's needs.

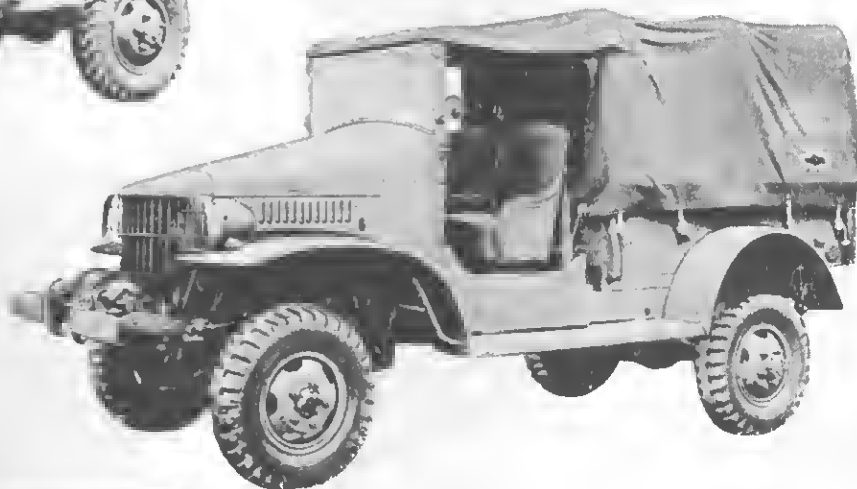
The new 3/4-ton series used all new sheet

DODGE 1/2 ton MILITARY TRUCK VARIANTS

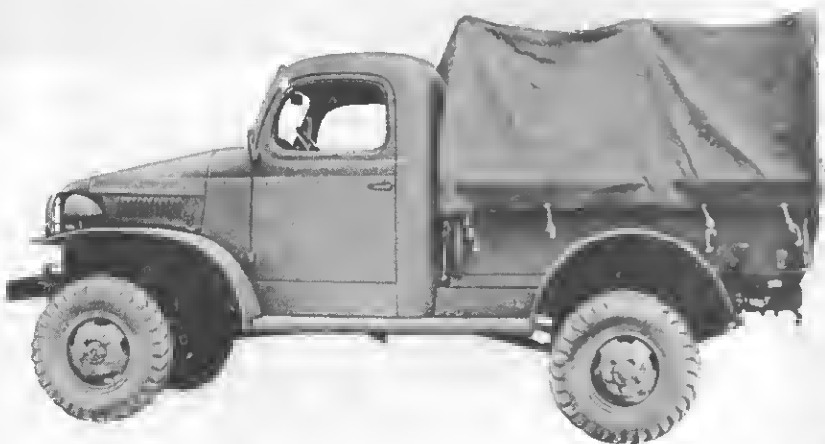
Body Types	Series:	T207	T211	T215
Weapons Carrier, without Winch		WC-3		WC-21
Weapons Carrier, with Winch		WC-4		WC-22
Carryall		WC-10	WC-17	WC-26
Pickup, with Closed Cab		WC-5	WC-12	WC-40
Pickup, with Open Cab		WC-1	WC-13	
Command & Reconnaissance, without Winch		WC-6	WC-15	WC-23
Command & Reconnaissance, with Winch		WC-7		WC-24
Command & Reconnaissance, Radio equipment		WC-8	WC-16	WC-25
Amulance		WC-9	WC-18	WC-27
Panel Delivery (* Panel, Radio)		WC-11	WC-19	WC-42*
Telephone Installation				WC-43
Chassis, with Cab (used for Special versions)			WC-20	WC-41



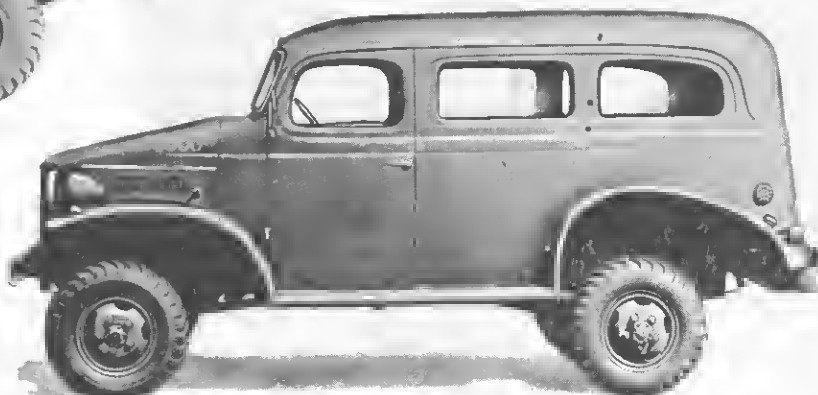
TRUCK, WEAPONS CARRIER, 1/2-TON WC-22. (Alternate vehicles were the WC-3 and WC-21 without Winch, and the WC-4 with Winch) This vehicle is typical of open-cab models.



TRUCK, COMMAND & RECONNAISSANCE, 1/2-TON, WC-24 (with Winch). (Other Models were WC-7 with Winch, and the WC-6, WC-15 and WC-23 without Winch) A similar vehicle, the WC-8 or WC-25, was equipped with Radio equipment.



TRUCK, PICKUP, 1/2-TON, WC-40 (Earlier Models were WC-1, WC-5, WC-12, WC-14, all of which were practically identical. This vehicle also came in open-cab versions (WC-13) and without rear seats)



TRUCK, CARRYALL, 1/2-TON, WC-26 (Models WC-10, WC-17 and WC-48 were virtually identical vehicles)



Dodge military trucks on the assembly line. The trucks on the left are 1/2-tons, while the right line of vehicles are 3/4-tons; this photo was taken during Spring 1943 during production changeover. Credit: Chrysler Corp.

metal with a new cab designed as an open unit. It shared a number of running components with the last 1/2-ton series (T215), and running changes were made during the 3/4-ton production, including the following:

1. Dodge emblems were deleted.
2. Heavier ring and pinion assemblies added.
3. Change from bolted front to welded front differential housings.
4. Winch capacity raised from 5,000 to 7,000 pounds.
5. Commercial pattern steering wheel deleted in favor of military pattern.
6. Zenith carburetors dropped in favor of a similar Carter unit.
7. Blackout switch changed to universal type.

During the production run of some half-million vehicles, all of the above obvious changes as well as many others were carried-out on a running basis, with no effort being made to distinguish one minor variant from another.

The Dodge 6x6 should also be discussed, as it was literally nothing more than a 3/4-ton Dodge WC with one additional driven axle and a two-speed transfer case. The 6x6 came into being when the infantry squad was expanded from 8 to 12 men, and a standard 3/4-ton



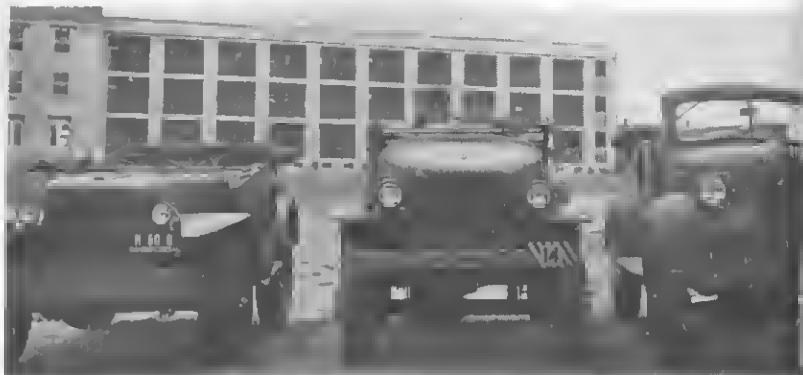
1/2-ton Command & Reconnaissance vehicles shown during a field parade in 1942. Note the unit guidons and the early 1/4-ton Jeeps in the background. In this case, the 1/2-tons were CO's vehicles. Photo: Chrysler Corp.

Weapons Carrier was not quite large enough to do the job. The fact that one additional axle enabled the basic vehicle to double its capacity certainly spoke well for the original design. Something less than 50,000 of the T223 Dodge 6x6 (which the Army designated WC-62) were constructed before production ceased in 1945.

The next step in development of the 3/4-ton series was the M37, which was produced from 1949 to 1956, and is still an item of issue in the US military system. The M37 was essentially similar to the World War II. Weapons Carrier, with the following modifications:

1. The two-speed transfer case developed for the WC-62 6x6 was used in place of the World War II. period single-speed unit.
2. Provisions were made for rapid mounting of fording equipment.
3. The cab was equipped with doors and roll-up windows for decent weather protection.
4. Ignition was 24 volt, and fully waterproofed.
5. Wiring was conduited and very well protected against water and dust.
6. Winch design was improved and capacity was again increased.

The M37, like the WC series machines, were widely distributed to "AID" countries (as military assistance) and remain in service throughout the world today. The old 300 series Dodge Power Wagon (not the corpulent machine presently bearing the name), which was a civilian version of the M37 and it is still widely used and acclaimed among campers.



This photo shows visual differences between 1/2-ton and 3/4-ton vehicles of the VC and WC series. On the right is the VC 1940 machine, in the center the 1/2-ton WC and on the left, the 3/4-ton WC. All are Command and Reconnaissance vehicles. Credit: Chrysler Corp.

The 3/4-ton Dodge is one of the few real combat vehicles of World War II. that can be found, driven on streets, stored in garages smaller than Zeppelin hangers, and for which some practical use can be found. The 30-gallon fuel tank permits about 300 miles of driving at 40-50 mph. If in reasonable condition, the original flathead 6-cylinder engine is dead reliable, and more than sufficiently powerful to do anything within reason, on or off the road. If the cooling system is not plugged with thirty years of cornflakes, it should be impossible to overheat the system. The transmission is four-speed, non-synchromesh (double-clutch going up and down) and is rather noisy as is the entire drivetrain. Actually, the wind noise in the open-air cab is such that the howling and whining of the gears is scarcely a problem.

Off the road, the old Dodges are superb. Interestingly, most "experts" (who have never sat in one)

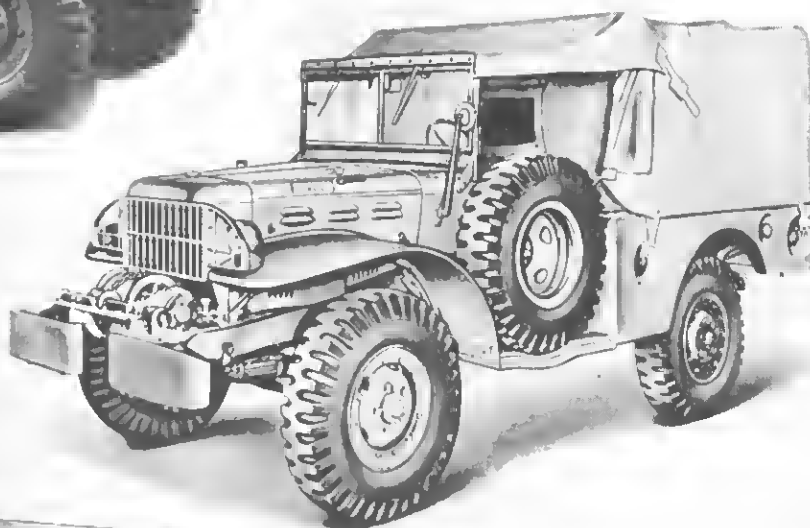
DODGE 3/4 ton MILITARY TRUCK VARIANTS

WC-51 Weapons Carrier w/o Winch
 WC-52 Weapons Carrier w/Winch
 WC-53 Carryall (or Command Field Sedan)
 WC-54 Ambulance
 WC-55 Gun Motor Carriage, 37mm M6
 WC-56 Command & Reconnaissance w/o Winch

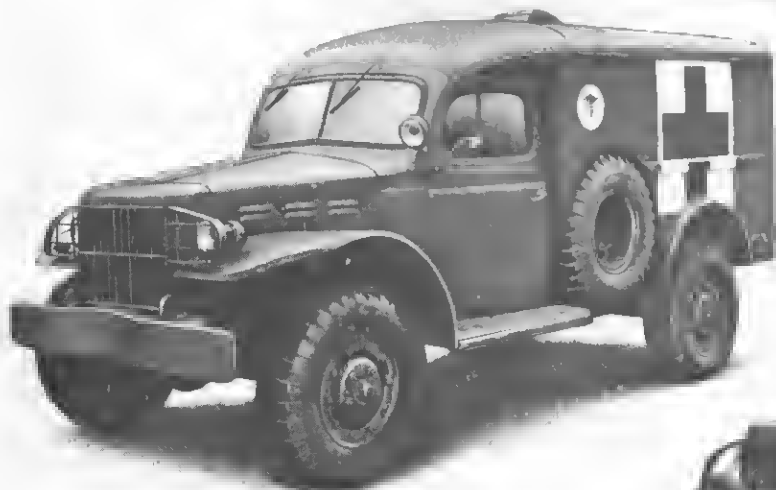
WC-57 Command & Reconnaissance w/ Winch
 WC-58 Command & Reconnaissance w/ Radio
 WC-59 Light Maintenance Truck (K-50)
 WC-60 Emergency Repair Truck (M2)
 WC-61 Telephone Maintenance (K-50B)
 WC-64 Ambulance KD (or Knockdown)



TRUCK, WEAPONS CARRIER, 3/4-TON
 WC-52 (Truck, Weapons Carrier, 3/4-ton WC-51 is identical except for solid front bumper and lack of winch).



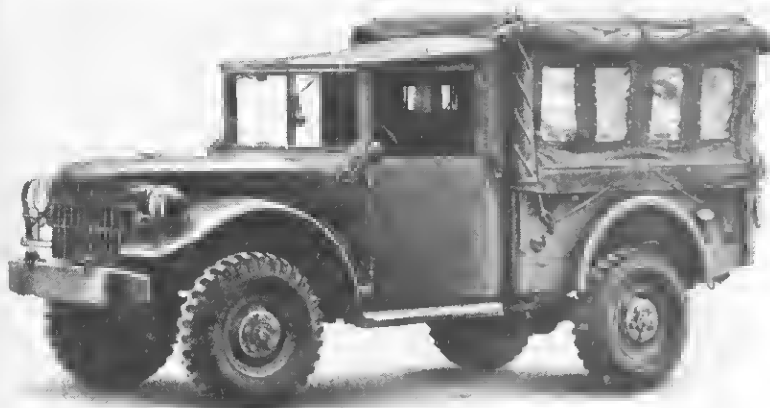
TRUCK, COMMAND & RECONNAISSANCE, 3/4-TON, WC-56 (Truck, Command & Reconnaissance, WC-57 has split front bumper and winch; Truck, Command & Reconnaissance, WC-58 has winch and radio equipment.)



TRUCK, AMBULANCE, 3/4-TON, WC-54
 (Truck, Ambulance, 3/4-ton KD, WC-64 was similar but with "Knockdown" body and open cab)



TRUCK, CARRYALL, 3/4-TON, WC-53
 (Truck, Command Field Sedan, WC-53 (Special) was similar with side door, internal map boards, radio equipment and top storage rack.)



Shown above: The M42 3/4-ton Truck, Command. This vehicle was developed on a M37 Weapons Carrier body to replace the earlier Command & Reconnaissance versions (of the WC series).

will deliver lengthy dissertations on how any vehicle as heavy as the 3/4-ton can't go anywhere, etc. ad nauseum. The facts are that the machine has tremendous ground clearance, very strong tires, large coolant capacity, and is put together so as to stay together even if someone were shooting at it. One of the few weak points has to be springs, as they do tend to break rather more easily than they should. However, the author's 1968 4x4 vehicle (make deliberately un-named), when new and driven under the same circumstances that would break Dodge springs, simply began to come apart at all induction-welded body seams, and had to be "retired" from off-road service.....

In retrospect, the various World War II. and later Dodge military vehicles are excellent vehicles, of significant historical interest, and are deserving of the attention of those persons interested in combat vehicles. While they do not have the "off-road" interest of their more widely-known smaller "Jeep" brethren, they are rugged and more reliable, and their pay-load makes them a tremendous bargain to carry loads into rugged or difficult terrain.



Wargame Review

- 8 -

ROMMEL: The Campaign for North Africa.....

Game Designer: Loren F. Sperry

1014 North 4th Street

Sheboygan, WI 53081

Price: \$5.00 (plus \$.50 for postage and handling)

Game Reviewed by: J. W. Johnson

First, I would like to say that I have enjoyed playing this game and that any criticisms that I may voice are to be construed as constructive. At first glance this game appears to be merely a redesign of Avalon-Hill's Afrika Korps (AK). But a closer examination of the rules and the mapboard quickly dispels this notion. Let's go through the game item by item:

1. Physical Equipment - Rated Good

a. Mapboard - The mapboard is printed on beige paper, with the actual playing area occupying about one-half of the mapboard. The remaining area includes the Combat Results Table (CRT), Order of Appearance Table and a pictorial Order of Battle Table for each of the conflicting sides. Unfortunately both tables face the bottom of the mapboard, which makes the initial setup difficult. Also, the spaces provided for the counters are a bit small, further complicating the setup and retrieval of counters when needed. I would like to see these two factors corrected in future editions of the game. Also, there is an error in the map itself: the coast road does not connect Bardia and Sollum. This can be corrected with a felt-tip pen; draw in the road from Sollum connecting it to the road in the hex directly east of Sollum itself.....

b. Counters - The counters are in three colors: yellow for the Allies, light green for the Italians and dark green for the Germans. The order of battle appears to be complete. The counters are printed in the familiar A-H format with the heavy numbers at the bottom representing the basic attack/defense factor of the

unit followed by its basic movement allowance. The game sent for our review had the counters off-register in the perforations and they were printed on thin cardboard which is very difficult to pickup and move around (which you'll be doing quite a bit of). I suggest that you mount the counters on heavier cardboard using rubber cement and then cut the counters with a sharp X-acto knife; this short amount of time you spend is worth it.

2. Rules - comprehensive with a few ambiguities. I have written Mr. Sperry regarding these, and I hope to print his answers in a later issue. Since the rules dictate the strategy/tactics of play to a great extent, I suggest that the prospective player read and reread the rules very carefully. Also study the CRT as this too will affect play to a great extent. I will cite two examples to underline these points:

The CRT places a great deal more emphasis upon forcing the enemy to retreat rather than killing him. Unfortunately, I found no mention of the victor being able to advance after forcing a retreat, and a retreat can be as great as seven (7) hexes.....

If the optional fort rule is used, it is more advantageous to attack the fort at 1:1 to 3:1 rather than at higher odds. This is because units in a fort do not have to retreat, and attacks at odds greater than 3:1 have little effect in causing the defender to lose steps.

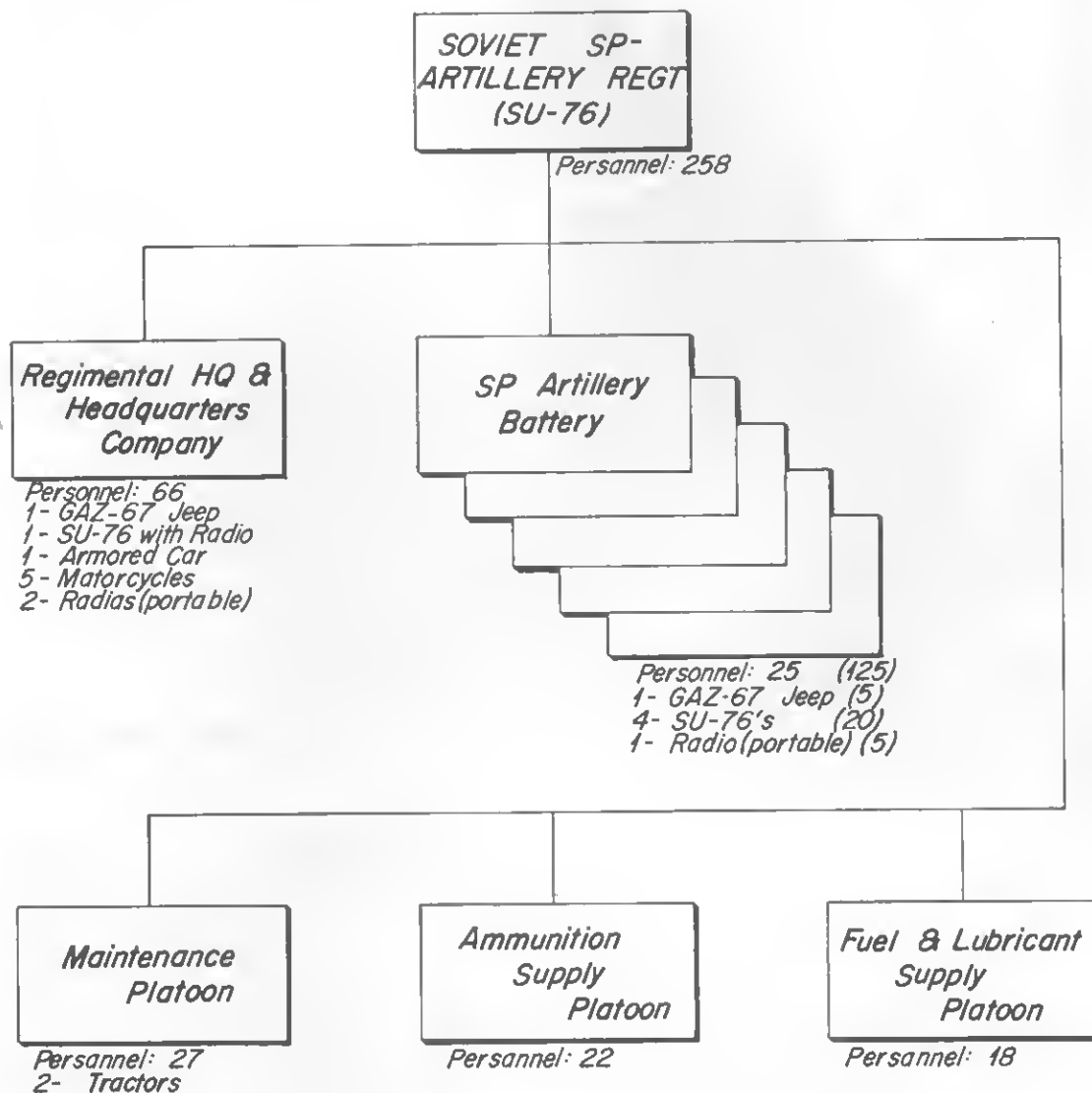
For those of you who are used to playing AK, there are some changes in thinking in store for you. First, attrition is accomplished via a step reduction system such as is found in A-H's Anzio. This is a form of "killing" that I've always liked, so I give my biased praise. Secondly, I couldn't find any reference in the rules to the time-honored tactic of "soaking off". This is a negative feature to my way of thinking, but you may attribute that to the fact that this is probably my favorite tactic (when the rules allow it). Last, there are no "exchanges" listed on the CRT. I, for one, am glad to see this obnoxious combat result eliminated. Those of you who have played AK and attacked an Allied 2-2-6 or 1-1-6 doubled with a German 7-7-10 and rolled an "exchange" know what I mean. The other side of the coin is that it's quite nice to be on the favorable side of one of these exchanges.....

- Continued on Page 33 -

ORGANIZATION CHART:

SOVIET SELF-PROPELLED ARTILLERY REGIMENT (SU-76)

DATE: SUMMER 1944
by W.Larson & J.Steward



Additional Equipment: 34- Trucks (5 seat)
2- Field Kitchen Trailers


Source: OKW; Abt. Fremde Heere Ost: "Kriegsgliederung eines selbstfahrenden Art. Rgt. (Slb.76)"
(Natl. Archives, T78, R486, Frame No. 6470413)

Men Against Tanks

Individual Anti-Tank German

by Kurt Fischer

The Panzerfaust



It was early morning, and the light was diffused by the cold swirling fog that hovered in the battered East Prussian village. Outside of a partially destroyed building sat a guarding Soviet T34 medium tank, its two crewmen in the turret joking as they used captured German newspaper to fashion home-rolled "papyrosa" cigarettes. As the light increased, the chances of a German attack lessened, and so the Russians became more care-free, totally missing the German infantryman creeping in the rubble across the street. Suddenly terror struck with a tremendous explosion, as the T34 erupted in flames and smoke. As startled Russians awoke and scrambled for weapons, two more rodde-Grenades flew through window openings and exploded. It was a morning raid by a German Panzer-Jagd-Kommando (Tank Hunting Unit) and it left a Soviet Tank Company battered and decimated.

The weapon used in this morning raid was a "Panzerfaust" (Armored Fist), a form of recoilless grenade launcher that was a common weapon in the German Wehrmacht during 1944-1945. This weapon was

revolutionary and inovative: for the first time in warfare an infantryman had an easily portable, one-shot, disposable anti-tank weapon which was effective against all types of armored vehicles. The Panzerfaust, as recognized today, is the grandfather of a weapons system that is "standard" in many of the world's armies. The above description of a raid illustrates the techniques used for success and also the real shortcomings and disadvantages of the weapon. First of all, the Panzerfaust was a short-range weapon, generally restricted (even in very late-war models) to targets at a range less than fifty meters. It was largely a weapon of surprise, since the user had to be exposed to the target at such short ranges and when the weapon fired, the resulting back-blast clearly revealed the firer's position, making escape difficult. Coupled to this, an initial design problem in fuzes made the German infantryman somewhat reluctant to use the Panzerfaust, since it had an initial tendency to explode in the user's face after launch! In spite of the disadvantages, the Panzerfaust came to be regarded as a potent anti-tank weapon; American and Russian tankers alike piled sandbags, logs, concrete and other materials (including bedsprings, doors and assorted junk) on their tanks for additional "stand-off" protection.

The first (prototype) weapon of this type was given the name "Faustpatrone" (or Fist Cartridge) from

Weapons in the Wehrmacht



(or Faustpatrone)

the shape of the bulbous warhead. When the design problem with fuzes became apparent, the weapon was redesigned and redesignated "Faustpatrone II." This name was soon changed to "Panzerfaust 30", perhaps to better indicate the anti-tank role. The number "30" referred to the maximum effective range in meters! The early, trouble-ridden version had a smaller, odd-shaped warhead, and we called it the "kleiner" (or small one). In the spring/summer of 1944, a major re-design was initiated and the new weapon, although externally identical to the Panzerfaust 30, had its effective range doubled (through the use of a more powerful propellant), and it was designated as the Panzerfaust 60. Although I personally never saw any later versions, we were told of a fourth model which appeared in February or March of 1945; it was named the Panzerfaust 100. Believe-me, we would have liked to have a 100-meter range Panzerfaust! The editor has indicated that a longer-range Panzerfaust 150 was under development when the war ended, and that prototypes of this weapon were used to develop the Russian RPG-1 and RPG-2. So much for progress.....

Although some authors have indicated that the Panzerfaust was a "rocket-launcher", in the true sense of the word, this was not true. The grenade projectile fired from the Panzerfaust did not carry its own propellant; instead the propellant cartridge was contained

inside the launching tube. When fired, the cartridge gases pushed the grenade from the front of the tube, and also exhausted from the tube's rear opening (which eliminated recoil). When fired at night, the rear "exhaust" formed a four foot long trail of fire! As the entire head of the grenade was exposed in front of the weapon, there was no length of "barrel" or tube for the missile to travel in; I suppose you could call the Panzerfaust a "zero-length" launch system. After firing, the launch tube was thrown-away, much as is done with the current U.S. Army 66mm LAW. To say that the Panzerfaust system was crude and simple would be virtually an understatement, however, it was reasonably accurate and could penetrate approximately 8-inches of armor plate! It gave the German infantryman a weapon that could dispose of the "Josef Stalin" heavy tank, even though it took courage to get close enough to the tank to be effective.

I would like to take some space to better describe the Panzerfaust, through words and drawings (see the next page), for it might be of interest to see exactly how simple the system was constructed. The grenade used the "shaped charge" principle for armor penetration; the warhead was approximately 5-1/2 inches in diameter. Behind the bulb-shaped warhead was a hollow tube containing the base-detonating fuze and a booster. These elements were loaded into the grenade just before

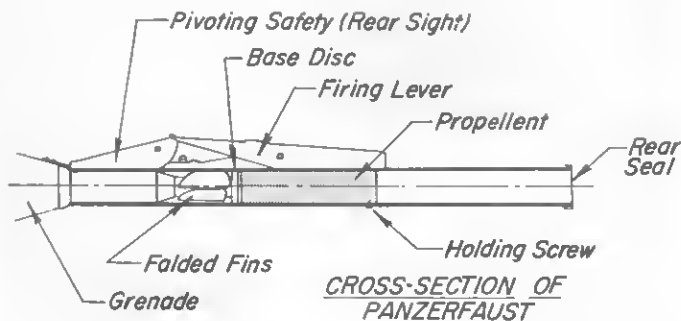
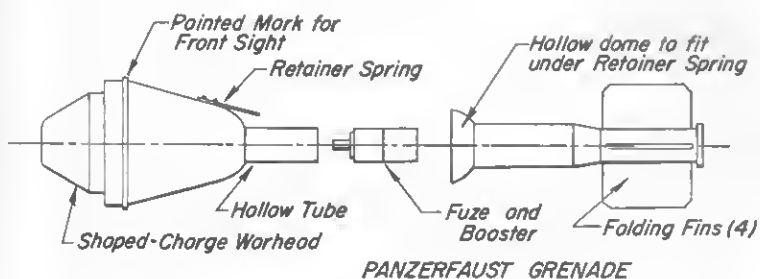
using by removing the detachable tail assembly and inserting them into the hollow tube (as shown below). After the tail assembly was replaced (it was held in place by a retainer spring on the warhead), the fins were carefully curled against the tail and the grenade was slid into the front of the Panzerfaust until the warhead rested against the front of the open tube. The grenade was held in place by friction from the collapsed fins against the inside of the tube. Once launched, the fins sprang open (as shown below), steering the grenade on a straight course until it hit the target.

The launching tube of the Panzerfaust was intended as a throw-away device; once fired, it was not meant to be reloaded. In the center of the thin metal tube was the propellant cartridge, which was held in place by a small screw. The cartridge was protected from moisture by the rear seal (which blew-off on firing) and a base disc just behind the grenade (which assisted in pushing the grenade from the tube on firing). Immediately above the propellant cartridge was the firing mechanism, which consisted of a pivoting hand grip/trigger, a spring steel striker, a percussion igniter and a pivoting safety. These parts are illustrated below, and their functioning is best described by my telling about the actions of the infantryman as he engages a target. After inserting the "armed" grenade and when ready for use, the infantryman grasped the extreme front of the pivoting safety and pulled it upward until it latched. This elevated the front of the safety, which then functioned as the rear sight. It also freed the hand grip/trigger for firing. This hand grip pivoted around a center pin, and when the infantryman had aimed his Panzerfaust at an enemy tank, he squeezed downward on the forward part of the hand grip. As the front part of the grip depressed, the rear part pivoted upward, freeing the steel spring striker. The striker snapped downward, hitting the percussion igniter which then ignited the propellant cartridge which thrust the grenade in the direction of the target. Upon reaching the target, the base fuze



functioned as an impact fuze, exploding the grenade and destroying the target vehicle (hopefully).

It should be stressed that the Panzerfaust was a relatively inaccurate weapon that relied heavily on surprise and short range to be effective. Since the sights were so primitive (the rear sight was a small hole in the safety, while the front sight was a painted spot on the warhead), aiming the weapon was difficult and it was virtually impossible to obtain an accurate "lead" on a moving enemy tank. Added to the sighting



Men Against Tanks, in the next issue, will cover details of the German Raketpanzerbüchse 54, the German equivalent of the American "Bazooka"

problems was the fact that the projectile (grenade) was moving at a slow velocity through a high curved arc. It therefore, took some time to reach longer range targets, with resulting inaccuracy and a delay which could be fatal to the exposed infantryman.

- Continued on Page 32 -

AFV INQUIRY

- 13 -

Armor Question from Readers, with Answers from the AFV-G2 Staff.

Question: Could you please provide some background information on the higher-numbered U. S. Armored Divisions in World War II.?

Answer: We're not sure exactly what information is required, but we'll start with the 10th Armored Division, and work our way "upwards" as space permits, and if interest is sufficient, we can expand the coverage to include the lower-numbered divisions.

10th Armored Division. The 10th was activated 15 July 1942 and was shipped overseas on 13 September 1944. It entered France through the port of Cherbourg, 23 September 1944 and put in a month of training at Teurthville before entering combat. Leaving Teurthville, 25 October, the division moved to Mars-la-Tour where it supported XX. Corps, containing enemy troops in the area. In mid-November it went on the offensive, crossing the Moselle at Malling, and drove to the Saar River, north of Metz. The division was making preparations for the Third Army drive on the Rhine when it was ordered north to stop the German winter offensive, 17 December. The 10th held defensive positions against heavy opposition near Bastogne, Noville and Bras. Resting briefly in early January, the 10th moved out again to defensive positions east of the Saar, south of the Maginot Line. On 20 February, the division returned to the attack and took part in the clearing of the Saar-Moselle triangle. The division then attacked north and captured Trier, 15 March 1945. Driving through Kaiserlautern, it advanced to the Rhine, crossed the river at Mannheim 28 March and turned south, capturing Oehringen and Heilbronn, and reached Kirchheim, meeting waning resistance. The division crossed the Danube 23-25 April and took Oberammergau. In May, the 10th drove into the "Redoubt" and had reached Innsbruck when the war in Europe ended. It returned to the U.S. on 13 October 1945 and was inactivated on the same day.

11th Armored Division. Activated 15 August 1942, the 11th was shipped overseas 29 September 1944. Arriving in England, 12 November, the 11th prepared for combat with two months' training on the Salisbury Plain. The division landed in Normandy, 16 December, assigned to contain the enemy in the Lorient pocket, but the Ardennes offensive resulted in a forced march to the Meuse and the defense of a 30-mile sector from Givet to Sedan, 23 December. Launching an attack from Neufchateau (in Belgium) on 30 December, the 11th defended the highway to Bastogne against fierce assault. The division acted as the spearhead of a wedge into the enemy line and its junction with the First Army at Houffalize, 16 January, created a huge trap. After the liquidation of the Bulge, the Siegfried Line was pierced, and the key point of Roscheid fell on 20 February. After a brief rest, the 11th took Gerolstein and Nieder Bettingen against violent opposition. In March 1945, in the swing southward to clear the Saar-Moselle-Rhine pocket, the Moselle river was crossed at Bullay and the Worms airport captured. After rest and maintenance, the division drove across the Rhine at Oppenheim and headed for the Thuringen forest, reaching Oberhof on 3 April. The offensive raced

through Bavaria, Coburg falling on the 10th, Bayreuth on the 14th. In the final drive, the division crossed the the Regen river, 24 April, overran Grafenau and Freyung, and plunged toward the Danube. The enemy put up his last fanatical resistance along the approaches to Linz, Austria, but the 11th entered that city 5 May. Pushing onwards, elements contacted Soviet forces, 8 May, the first unit of the Third Army to meet the Russian Army. The war in Europe ended 9 May, and the division was placed on occupational duty until inactivation in Europe on 31 August 1945.

12th Armored Division. The 12th was activated 15 September 1942 and shipped overseas 20 September 1944. The division arrived in Liverpool, England, 2 October and in Le Havre, France, 11 November. Advance elements met the enemy near Weisslingen, 5 December, and the entire division moved against the Maginot Line fortifications 2 days later. In its advance, Rohrbach and the Bettviller area were liberated by 12 December and Utweiler, Germany was seized 21 December. After a short period of rest and maintenance, the 12th rolled against the Rhine riverhead at Herlisheim. German defenders repulsed division attacks in the most violent and bloody fighting in the division's history, 9-10 January, however, enemy counterattacks failed also. Going over to the offensive, the division attacked south from Colmar, and in a lightning drive, effected junction with the French at Rouffach, 5 February, sealing the Colmar pocket and ending German resistance in the Vosges Mountains. Except for screening elements, the division withdrew to the St. Amand area for rest and retraining. The attack resumed 18 March 1945, and in a quick drive to the Rhine, Ludwigshafen fell, 21 March, and two other important cities, Speyer and Germersheim were secured on the 24th, clearing the Saar Palentinate. Maintaining the rapid pace, the 12th crossed the Rhine river at Worms, advanced against light resistance toward Wurzburg and captured the city. After assisting in the seizure of Schweinfurt, the division continued toward Nurnberg, 13 April, taking Neustadt, then shifting toward Munich on 17 April. Elements of the 12th raced to the Danube, capturing the bridge at Dillingen before demolition men could wreck it; this opened up a vital artery for Allied forces flooding into Southern Germany. The division spearheaded the Seventh Army drive, securing Landsberg 29 April and moving deeper into the "Redoubt" area. Elements crossed the Inn river and the Austrian border 3 May. The 12th engaged in security duties until 22 November 1945 when it left Marseille, France for home. It was inactivated 3 December 1945.

13th Armored Division. The 13th was activated 15 October 1942 and shipped overseas 18 January 1945, arriving at Le Havre, France 29 January. After performing occupation duties, the division moved to Homberg near Kassel to prepare for combat under the Third Army, 5 April. At Altenkirchen, it was attached to the XVIII. Corps and prepared for the Rose pocket operation; the attack jumped-off at Honnef, 10 April. After crossing

- Continued on Page 25 -

TACTICAL MARKINGS of the WAFFEN-SS

Part 4

by James Steuard



In the last issue, we covered the tactical markings of the 5. SS-Panzer-Division "Wiking", and it would seem logical to continue coverage with the units which evolved from this division.

On 30 March 1943, an order from Hitler established the III. (germanische) SS-Panzer-Korps, to be composed of two divisions; SS-Panzer-Grenadier-Division "Wiking" (as it was then designated), and a new unit, SS-Panzer-Grenadier-Division "Nordland". The "Wiking" Division gave up a cadre of personnel to form both the new division (which was to consist of "nordic" or Scandinavian volunteers) and the Corps Headquarters. SS-Obergruppenführer Felix Steiner, the division commander of "Wiking" was promoted to command of the new corps, and as he was leaving his old command, he wrote a letter to Reichsführer-SS Himmler suggesting that the new "Nordland" division assume the tactical symbol (the Sonnenrad) of the "Wiking" division in addition to other suggestions regarding collar and sleeve insignia. Not all of Steiner's suggestions were accepted but the collar insignia, division flag and tactical marking for SS-Panzer-Grenadier-Division "Nordland" were directly evolved from the "Wiking" Sonnenrad (or Sun Wheel) tactical marking. The collar insignia is shown



at the lower left (from an example in the author's collection). Note how the Sonnenrad is turned at a 45° angle in this insignia. The divisional flag, shown below as it appeared at the Danish recruiting agency, consisted of a white Sonnenrad on a black field.

The adopted tactical marking was a modified form of the "Wiking" tactical symbol, in that the Sonnenrad was surrounded by a solid ring, spaced away from the symbol. This marking was covered in an article in Volume III, Number 2 of AFV-G2, based on a photograph which appeared between pages 16 and 17 of the history of the III. (germanische) SS-Panzer-Korps (Wilhelm Tieke, Tragödie um die Treue, Munin Verlag GmbH, 1968). The symbol was painted in black on the white, winter camouflage finish of a reconnaissance Sd. Kfz. 250/9 armored halftrack.

One other photograph has been found to illustrate the tactical marking of SS-Panzer-Grenadier-Division "Nordland" and this source may be more common than the German-language corps history. The photo appears on page 112 of the Ballentine book on the late war Berlin fighting (Earl F. Ziemke, Battle for Berlin, Ballentine's Illustrated History of World War II, 1968).





Tactical Symbol - 11. SS-Freiwilligen-Panzer-Grenadier-Division "Nordland", taken from a photo of a Sd.Kfz. 250/9 of 2./SS-Pz.Aufklärungs-Abt. 11. on the Narwa (Leningrad) Front, Winter 1943-44.

This tactical symbol is shown immediately above as taken from the two source photographs.

Shortly after formation of the III. (germanische) Panzer-Korps, SS-Division "Wiking" was transferred from the corps to form another corps with SS-Division "Totenkopf". Its place was taken by another Scandinavian volunteer unit, the 4. SS-Freiwilligen-Panzer-Grenadier-Brigade "Nederland" (formed from Dutch volunteers), which had been expanded from the former "Legion Nederland". As a unique form of collar insignia, the Dutch volunteer unit wore a runic symbol known as a "Wolfsangle"; this insignia is shown below.

Unfortunately, a good deal of information is lacking about the tactical markings of the "Nederland" Brigade. It does not appear that this Brigade (or the later 23. SS-Freiwilligen-Panzer-Grenadier-Division "Nederland") used the Wolfsangle as a tactical marking, perhaps because it too closely resembled an Army tactical symbol. Conversations with two brigade (and divisional) veterans indicate that the Brigade tactical symbol consisted of a slanting sword superimposed over the letter "N". This would be logical, as the "standard" SS tactical symbol for a "Brigade" was a "sword" and the letter "N" would stand for "Nederland". However, it must be stated that no primary source material (such as photographs) has been found to verify this marking, and it must remain very suspect.

According to the divisional veterans, after the 4. SS-Brigade "Nederland" was expended into the 23.



SS-Panzer-Grenadier-Division, the tactical marking was changed to the symbol shown below. This symbol was a modified form of the "Odalrune" with arrowheads at the ends of the downward slanting legs. It is interesting to note that the III. SS-Panzer-Korps history also illustrates this marking for the division, however, it also must be stressed that no photographic evidence has been found (to date) to verify the existence of this symbol. I feel obligated to indicate that "memories are leaky vessels" and in the interest of historical accuracy, I would be most interested in verifying the accuracy of this tactical marking in photographs.

Reported Tactical Symbol - 4. SS-Freiwilligen-Panzer-Grenadier-Brigade "Nederland", from conversations with veterans; this symbol has not been verified.



Reported Tactical Symbol - 23. SS-Freiwilligen-Panzer-Grenadier-Division "Nederland", taken from conversations with divisional veterans. This symbol has not been verified by primary sources.

Before leaving the subject of the III. SS-Panzer Korps, I must indicate that all of the photos that I have examined of the corps headquarters vehicles do not show any tactical markings other than the normal corps pennants. Whether or not a corps marking was in use is not known at this time.

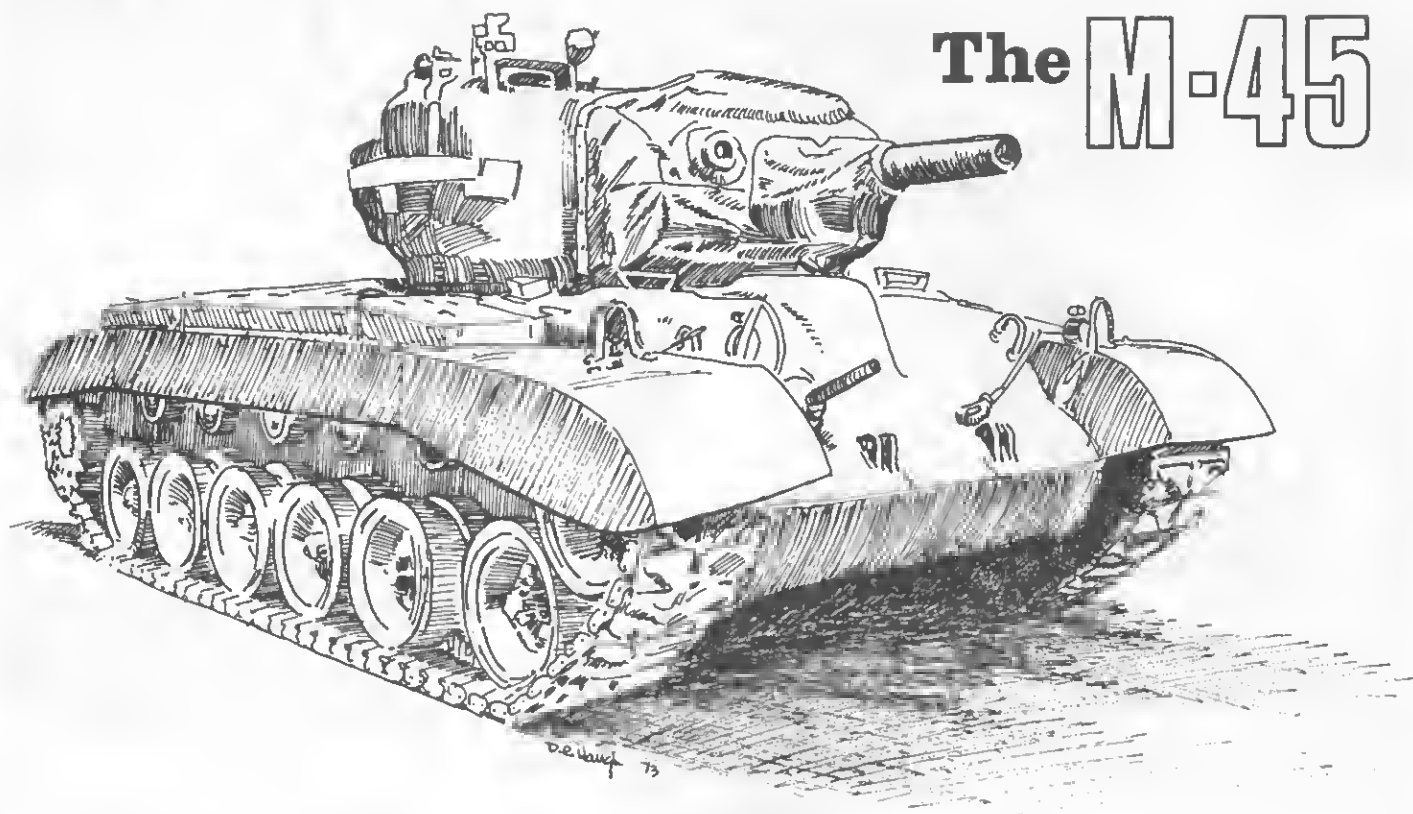
While covering units that operated on the northern part of the Russian front, it might prove of interest to illustrate one of the many Waffen-SS small unit tactical markings. In March of 1942, an order from the SS-Führungshauptamt (or SS High Command) established SS-Kurierstelle 3. "Pleskau"; this was a small unit entrusted with courier duties between the Higher SS and Police Commander (in Riga, Latvia) and other SS units in the northern area. SS-Kurierstelle 3 had a strength of 13 officers (all but one Couriers) and 18 enlisted men (of which all but one were drivers). The unit had 16 light cars and 1 motorcycle. While further operational information is lacking, the unit was assigned to the SS hospital at Riga for "housekeeping". The unit's formation orders detailed the tactical marking to be used on the cars and motorcycle; this marking is as illustrated below. It consisted of a ring surrounding a pair of flying wings, and the marking was to be applied to all vehicles with green (instead of white or yellow) paint.

In the next part, we'll break away from Waffen-SS divisions to detail the markings scheme used in the various Brigades of the Waffen-SS in 1942-43.....

Tactical Symbol - SS-Kurierstelle 3. "Pleskau", operating in the Riga, Latvia area in 1942. Taken from the unit formation order.



Marking in green



The M-45

Close-Support Medium Tank

BY DUANE THOMAS

Shortly after the development of the T23 and T26 vehicles (which were prototypes for the M26 "Pershing" Heavy Tank), serious thought was given to arming a good many of the new tanks with 105mm howitzers to serve parallel with 105mm howitzer armed M4 Sherman medium tanks. It was felt that the longer-barreled 90mm (or 76mm) armed tanks would serve primarily to defeat enemy armor, while the 105mm howitzer version would accompany infantry units to provide close support against enemy pillboxes, bunkers and positions.

The first prototype of the 105mm armed Pershing tank, designated as the T26E2, was originally to be delivered to the Army in April of 1945, but delays and a reduction of interest in howitzer-armed tanks resulted in a changed set of priorities. The first T26E2 was delivered to the Aberdeen Proving Grounds in July 1945, and series production started at Chrysler's Detroit Tank Arsenal in that same month. Earlier plans had been for Fisher (General Motors) to share in the production, but the changed requirements caused the cancellation of the contract. None of the 105mm armed versions saw service during World War II. In the late 1940's, the vehicle was standardized as the M45 Medium Tank, and they were assigned to tank units on an allocation basis, with two M45's going to each Tank Company. They were normally used to equip the Tank Section of the Company's Headquarters, as close-support vehicles. Some of these M45's served in Korea during the conflict, but the actual numbers that were so employed are not known, and photos taken during this period are uncommon.

The external configuration of the M45's hull was virtually identical to the late-production M26, however, there were a number of internal changes made primarily for stowage of 74 rounds of 105mm howitzer ammunition. Due to the lightness of the M4 105mm gun, the turret was extensively redesigned, with a thicker mantlet (gun shield) and turret front. The tank carried a .30 caliber coaxial machine gun, which fired through an aperture at the lower left corner of the mantlet, instead of the higher position in the M26. Standard use was made of the late-production T80E1 double-pin rubber block tracks. There was a small clamp-type travel lock installed beneath the mantlet to support the 105mm gun tube during road travel, and standard fittings were mounted on the turret roof to mount a .50 caliber machine gun for the commander's use; when not in use, this gun was covered with canvas and mounted in a storage rack on the rear of the turret.

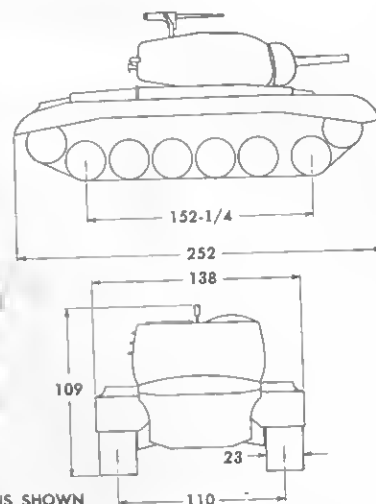
The drawings on the following pages illustrate a typical M45 Medium Tank with full stowage. The smooth tapered gun mantlet appears strange, but is the canvas cover as drawn in Army plans. The roof mounted .50 caliber machine gun is shown stowed on the rear of the turret. The rolled canvas stowage and tow cable locations appear standard, and a spare track section and the jack are carried on the left turret side.

The data table on the next page is taken from the Army Ordnance Vehicle Responsibility manual and will provide the essential items of data. For more information, readers are referred to "Pershing, a History of the Medium Tank T20 Series" by R.P. Hunnicutt.

TANK, MEDIUM, M45



RA PD 137732



NOTE: ALL DIMENSIONS SHOWN
ARE IN INCHES

Technical Manuals: 9-735, 9-1731B, 9-1731D, 9-1731G, 9-1735A, 9-1735B, 9-1735C, 9-1825B, 9-1826B, 9-1826C, 9-1828A, 9-1829A; Supply Catalog: SNL G-226.

Classification: Standard.

Armament: 1 Howitzer, 105-mm, M4, turret mounted; 2 guns, machine, cal. .30, Browning, M1919A4 (flexible), 1 mounted coaxially with main armament, 1 ball mounted at right front of hull; 1 gun, machine, cal. .50, Browning, M2, heavy barrel (flexible), pedestal mounted on top of turret.

Ammunition: 74 rounds, 105-mm; 5,000 rounds, cal. .30; 550 rounds, cal. .50; 900 rounds, cal. .45, for sub-machine-gun; 12 hand grenades.

Purpose: To provide mobile fire power and crew protection for offensive combat.

Fire Control and Vision Devices: Periscope, M6, M13, or M13B1 (vision); periscope, M15 (gunner's); periscope, M18C or M10D (commander's); quadrant, elevation, M9; quadrant, gunner's, M1; telescope, M76G (sight); telescope, elbow, M62 (sight); indicator, azimuth, M20.

Communications: (SCR-528 or SCR-608 or AN/GRC-3, -4, -5, -6, -7, or -8) and (RC-298); or (SCR-508 or SCR-528) and (RC-298) and (AN/VRC-3); or (AN/VRC-3) and (RC-99) and (RC-298).

GENERAL DATA

Crew	5
Weight, fighting	(lb) 92,500
Shipping dimensions, uncrated	(cu ft) 2,190; (sq ft) 242
Ground pressure	(psi) 13.4
Ground clearance	(in.) 17 3/4
Profile height, loaded	(in.) 28
Electrical system	(volts) 24
No. of batteries	(12-volt) 2
Type of ground	negative
Fuel octane rating	80
Capacities:	
Fuel	(gal) 191
Cooling system	(qt) 88
Crankcase, refill	(qt) 32
Auxiliary engine crankcase	(qt) 3
Transmission (including cooler)	(qt) 54 1/2
Differential	(qt) 72
Final drives	(each) (qt) 7
Brakes	mechanical, controlled-differential
Parking brake, type	hand-lever locks on steering brakes
Transmission (torqmatic):	
forward speeds	3
Gear ratio	High 0.336:1; Low 1.377:1
Differential-drive gear ratio	3.41:1
Final-drive gear ratio	3.95:1
Hull construction	cast homogeneous armor and welded armor plate

PERFORMANCE

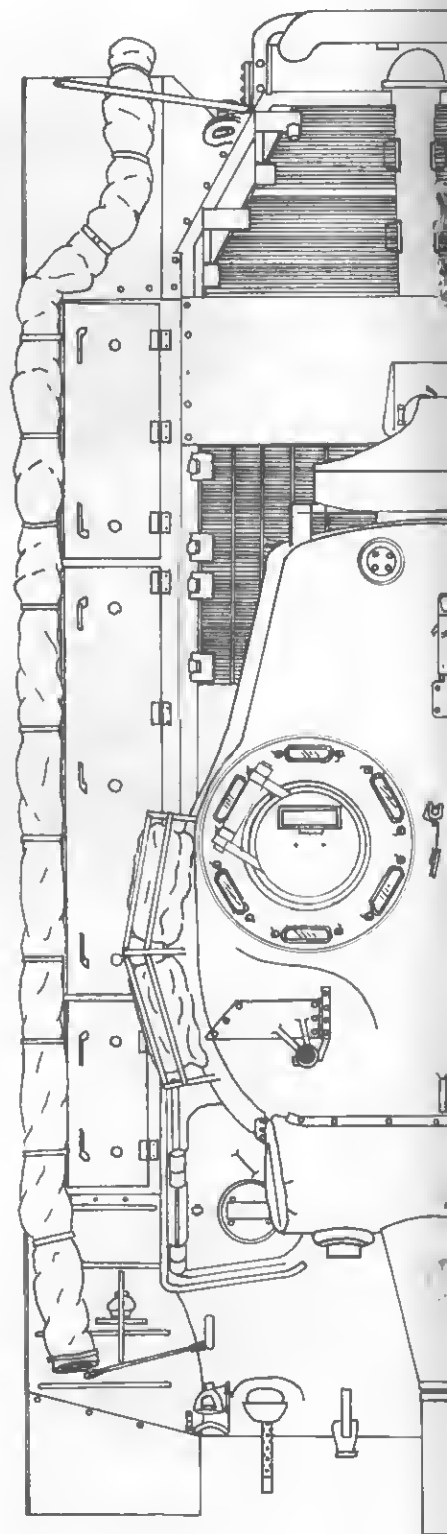
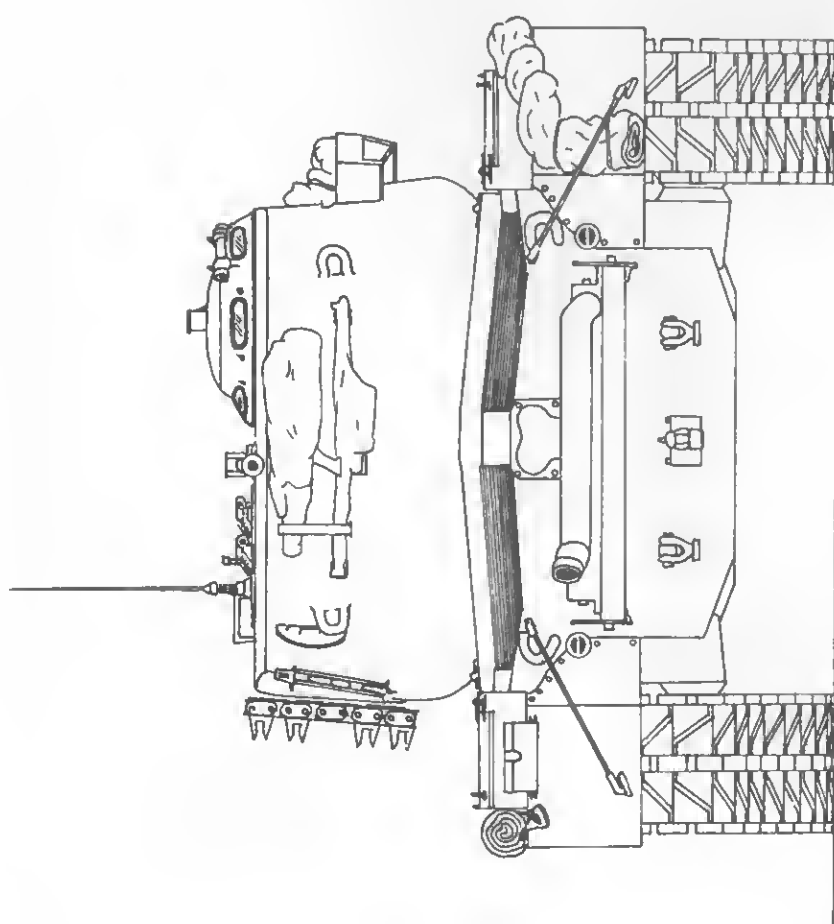
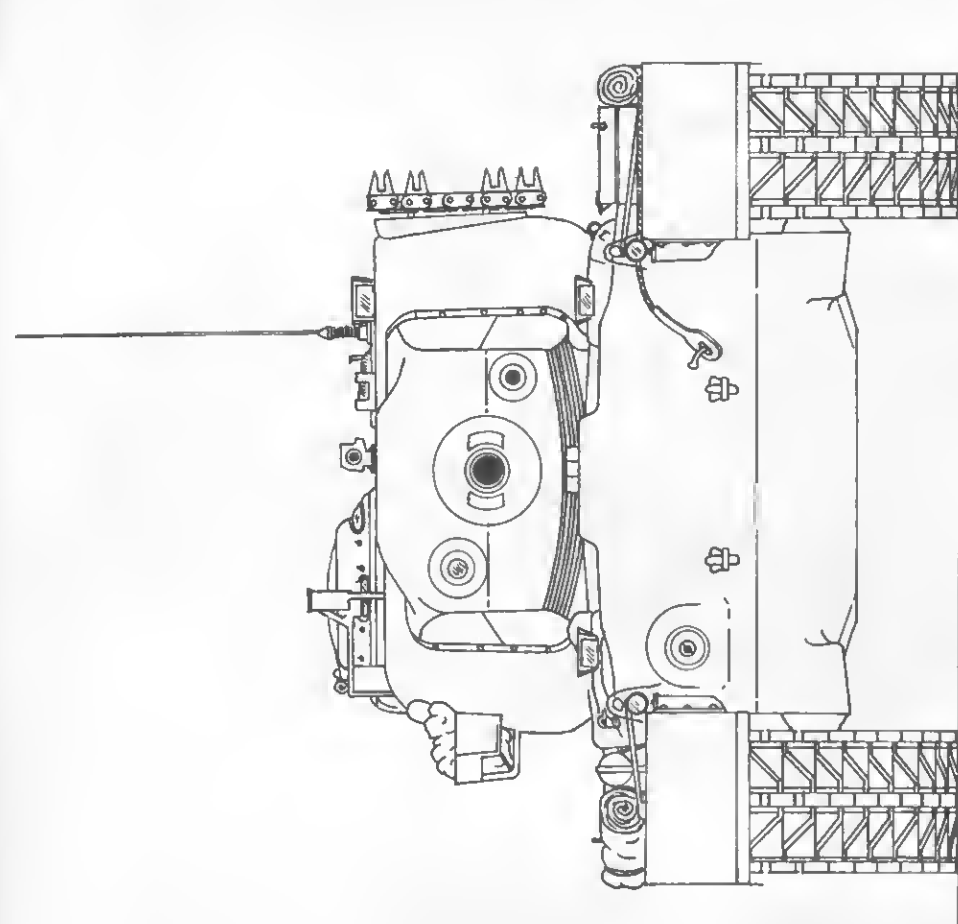
Maximum grade ability	(percent) 60
Turning radius	(ft) 31
Fording depth	(in.) 48
Maximum width of ditch vehicle can cross	(in.) 95
Maximum vertical obstacle vehicle can climb	(in.) 46
Fuel consumption (average conditions)	(mpg) 0.5
Cruising range (average conditions)	(mi) 100
Allowable speed, governed	(mph) 30
Maximum allowable towed load, gross	(lb) 10,000

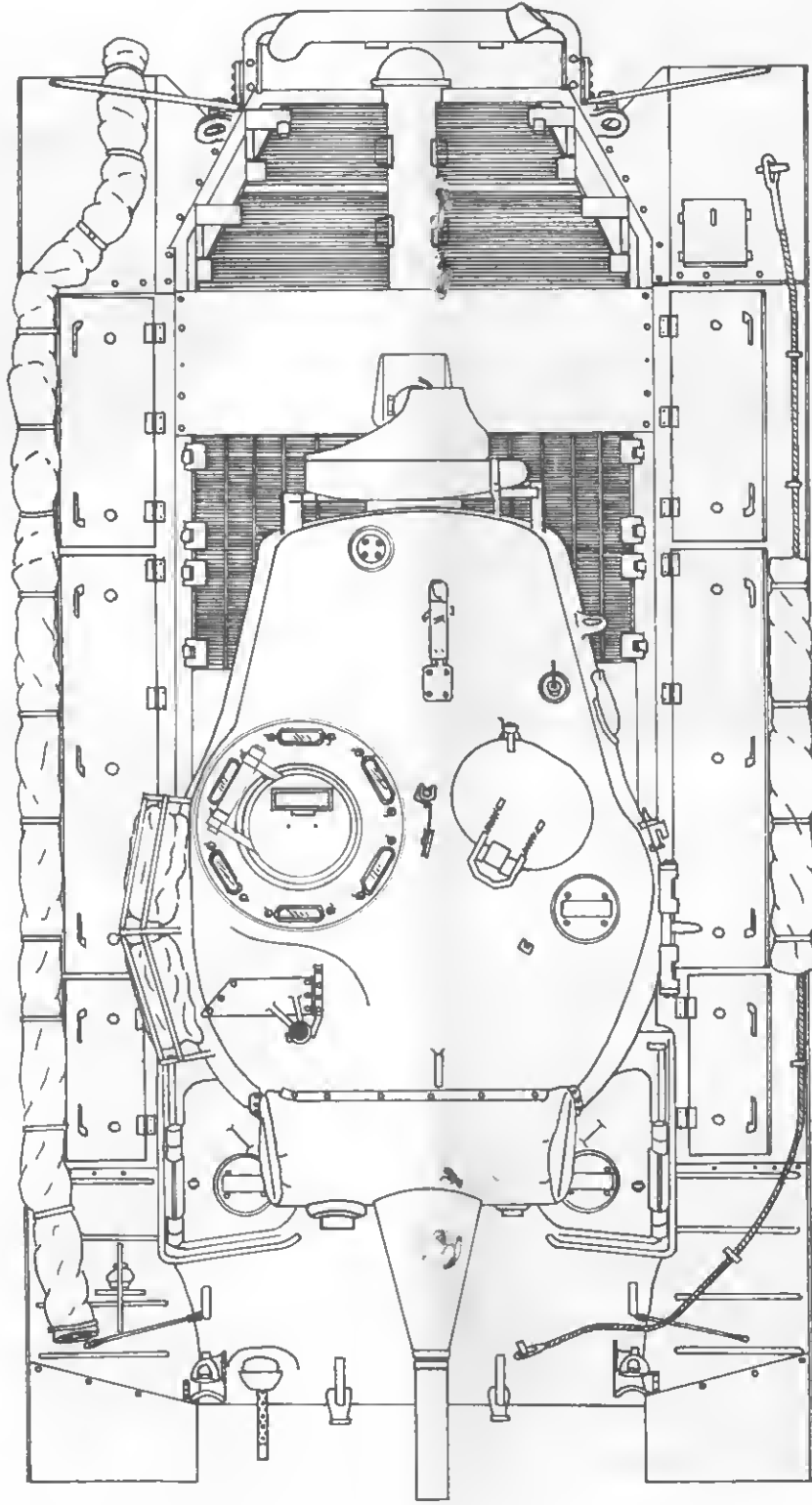
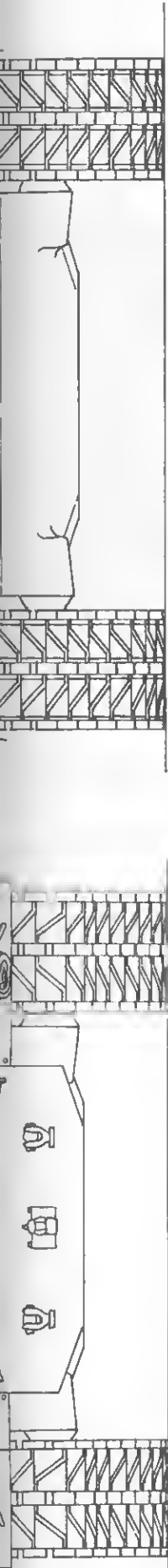
ENGINE

Manufacturer:	Ford	Model GAF
Type	4-cycle, valve-in-head; No. of cylinders (60-deg V)	8
Displacement	(cu in.)	1,100
Bore	(in.)	5.4
Stroke	(in.)	6
Compression ratio		7.5:1
Governed speed	(rpm)	2,800
Brake horsepower (max w/std accessories)	500 at (rpm)	2,600
Torque (max w/std accessories)	950 lb-ft at (rpm)	2,100
Type of ignition		magneto

ADDITIONAL DATA

Auxiliary engine: Waukesha, Model G-TGU.
Data given for vehicle equipped with track, rubber-backed-steel, T80E1.
Track, rubber, T84E1 is interchangeable.
Manual and power turret-traversing mechanism.
Equipped with elevation stabilizer.





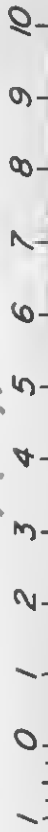
M-45 Medium Tank

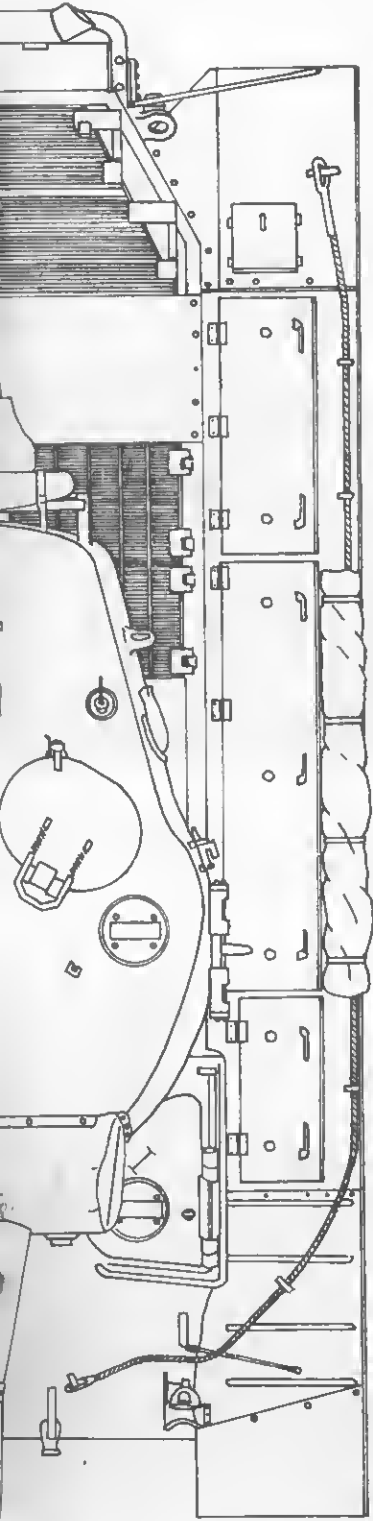
Drawn by:

D. R. Haugh

Scale: 1/32nd 35

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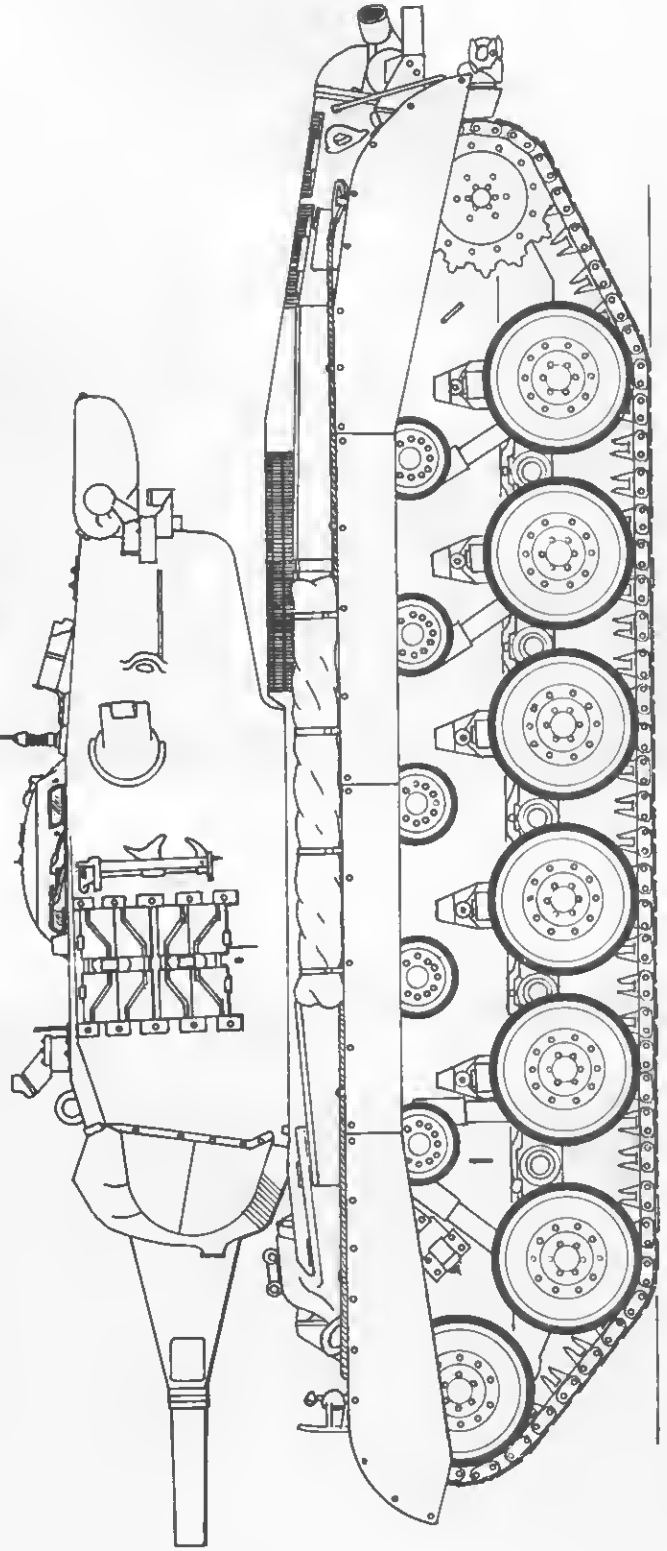
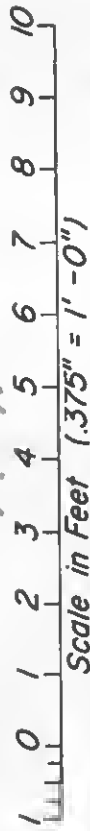
M-45 Medium Tank

Drawn by:

D. R. Haugh

Scale: 1/~~32~~nd 35

- 9/10



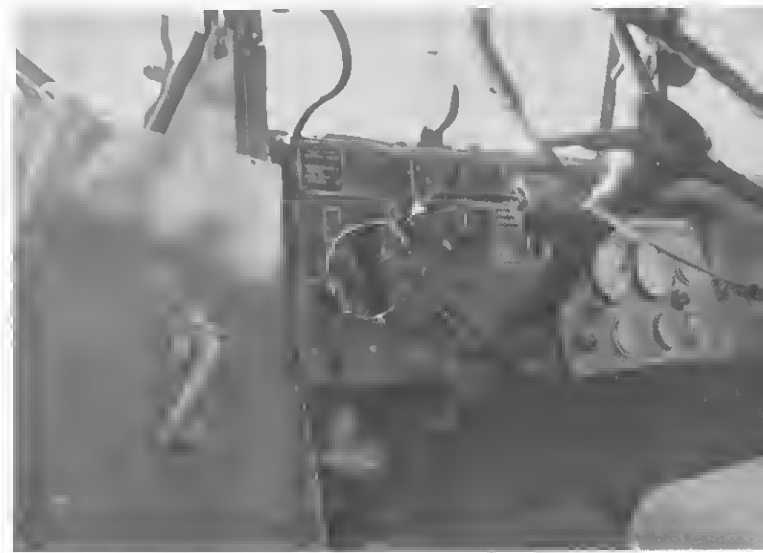
ARMOR IN PICTURES

"Armor in Pictures" is a photographic-article series to display reader-submitted material on military vehicles and associated models or dioramas. Readers are invited to submit their photographs of vehicles for inclusion in this series. Photos should be packed securely, preferably between sheets of cardboard, to prevent folding, and sent to AFV-G2, P. O. Box 293, La Puente, CA 91747, Attn: "Armor in Pictures". Credit will be given in the photo caption for all photos published and all photos will be returned after publication, along with a copy of the magazine in which the pictures appear.

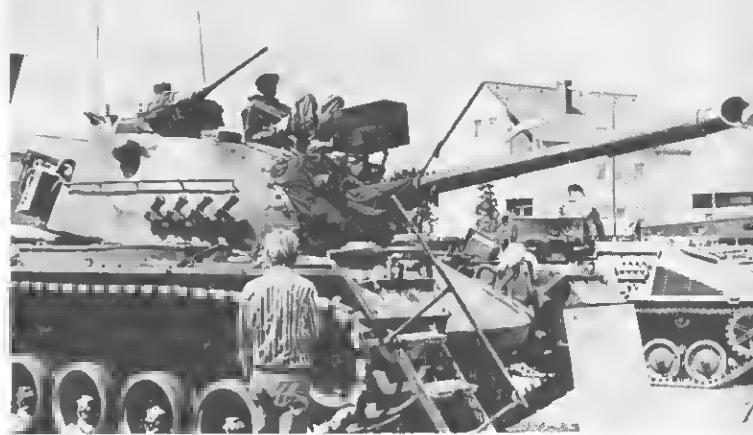
"Armor in Pictures" is also designed to serve readers as a forum for photo requests. If there's a particular photo reference needed, for modeling, for data, for accurate markings, etc., drop AFV-G2 a note (at the above address) to let the staff know what is required. Our staff will attempt to provide the photos that the readers wish to see, and we'll also provide a list of requested photos that readers are searching for.



The photos on this page were taken and provided by Ken Clawson of Sacramento, Calif. They show 5-ton dump trucks of the 513th Engineer Dump Truck Battalion, which were attached to Ken's Company A, 577th Engineer Battalion, at Don Doud, South Vietnam in February 1970. Ken says: "the damage on the trucks was done by, believe-it-or-not, Soviet B-40 rockets". In the photos above, one of the trucks suffered a hit in the rear bed. The rocket penetrated the bed, part of the cross frame and the intermediate rear axle, before blowing-up under the cab.



The photos above show where a Soviet rocket hit on the truck's back plate. The rocket penetrated through the back plate, the dash board and the floor. The photo on the right shows the dash penetration. These photos are excellent for details on shrapnel damaged metal plates; note how the metal is twisted and torn by the explosive force of the rocket.

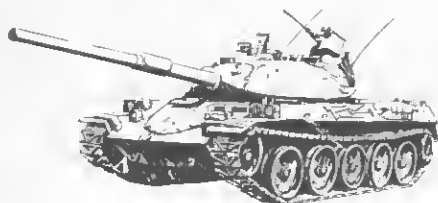


The above two photos were supplied by CPT. Dwight McLemore, and they show a West German M48A2 medium tank displayed before the German public. The photos are excellent for showing the Bundeswehr stowage and modifications made to this American-supplied vehicle. Note the external smoke dischargers on the turret side and the external gas can stowage. The rectangular box on the turret rear is for stowage of the tank searchlight (above the gun tube). Most of the Bundeswehr's M48A2's are gradually being phased-out of service as the "Leopard" enters wider service.

UNKNOWN VEHICLE ANSWER:

Last issue's Unknown Vehicle Photograph resulted in the greatest number of responses that we've received, and we want to express our thanks to all those readers who have helped us out with identifications. Needless to say, we received a number of different identifications. Four readers supplied answers which dovetailed together and formed an complete an answer as we can hope for (until more information becomes available). It appears that the unknown vehicle was a Roumanian Army self-propelled anti-tank gun used during the 1942-1945 period against the Russians on the Eastern Front. The vehicle chassis is that of the Czech LT Vz.35 tank, which had been sold to Roumania in some quantity to equip its armored regiments (along with a number of LT Vz.38 tanks). It appears that the Roumanians used stocks of captured Soviet 76.2mm ZIS-3 dual-purpose weapons (of either the 1941 or 1942 model) to arm this conversion and create an effective (?) anti-tank weapons system. As Roumanian armored units were seriously undergunned in comparison with Soviet tank units, the self-propelled anti-tank conversion probably aided in partially overcoming this disadvantage. Special thanks for the identification go to Colonel Robt. J. Icks, Ret'd., James W. Loop, Steve Zaloga and Steven Klein.

The photo at the right shows another unknown vehicle... in this case, some information is obvious. The picture was taken in North Africa and the German vehicle was obviously captured by the British, who are shown looking it over. The vehicle is obviously on a German Panzer IV chassis, but what exactly is it, and what was its function? Note the shelter-quarters covering the turret location, and the unusual bolt-on armor plates over the driver's compartment area. What is the strange device protruding just below the driver's visor? Can anyone provide help in identifying this German vehicle?



Making Templates from Scale Drawings

by James W. "Jay" Johnson

The art of converting and scratchbuilding has its roots in the desire of the modeler to create an original replica not found in kit form. Unfortunately, desire is not enough. To do a good job of converting or scratchbuilding, the modeler needs photographs, multi-view drawings and templates. Drawings of the model to be built are not always available and templates are even rarer. It is the intent of this article to provide the serious modeler with the technical tools necessary to develop accurate templates from multi-view scale drawings. The particular area of mechanical drawing which we will be covering is called "descriptive Geometry". For those of you who wish to learn more about this subject than I will cover, I can recommend "Theory and Problems of Descriptive Geometry" by Minor C. Hawk. This book is one of the Schaum's Outline Series as published by the McGraw-Hill Publishing Company and can be obtained at almost any college bookstore for \$2.95. The chapters of interest to those who plan to develop their own templates are numbers 1, 2 and 7.

Before pursuing the subject any further, I think it advisable to list the basic equipment, and give an estimate of the capital outlay necessary for the drawing of these templates. The list of drawing equipment given below is what I consider to be the bare essentials. This is what you will need:

Item	Approximate Cost
Protractor	\$1.50
Drawing Board, 21 x 16	\$4.00
T-Square, 24"	\$1.50
30-60° and 45° Triangles	\$1.00 ea.
Dividers and Compass	\$6.00
TOTAL	\$15.00

The dividers and compass are priced as a part of an inexpensive set of drawing instruments. I suggest that you buy an entire set of instruments even though you may never use some of them. There are good reasons for doing so. First, buying dividers and compass separately may cost too much and second, you may eventually find use for the other instruments in a standard set. Most of the items can be purchased in any good art supply store, but I suggest that you look through the ads in your local newspaper or go to a pawn shop. I bought my drawing instruments at a pawn shop at a bargain price. One other item which is very handy, but not absolutely necessary, is an architect's scale for about \$1.50. The scales of interest to most armor modelers would be those marked 1/4 (reads feet and inches in 1:48th scale directly) and 3/8 (feet and inches in 1:32nd scale). Unfortunately, I have not yet been able to locate any commercially marketed scale in 1:35th, but some of the back issues of AFV-G2 have this scale printed in them. (See Volume 2, Number 9... Ed.)

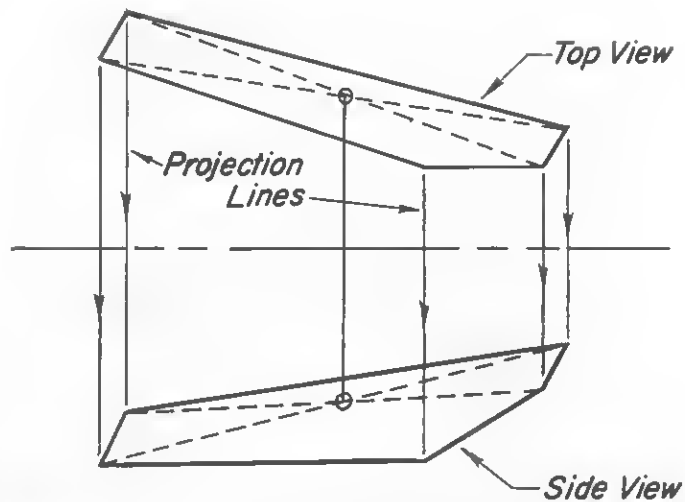
Now we can turn to the main object of this article - drawing templates from multi-view scale drawings. I am assuming that you have a set of scale drawings of the vehicle you wish to model. There are six (6) basic views of an object; they are front, rear, right side, left side, top and bottom. The bottom view is not normally given nor needed for AFV's. Now comes your first major consideration - is the drawing in the scale that you want? If it is not, you have two alternatives. You can have the drawing reduced or enlarged by a commercial photocopying firm. This can be expensive. The other alternative is to develop your templates in the scale of your source drawing, and then re-scale your templates. This is the method I prefer, but I have had training in engineering drawing so I am biased. Having determined the scale in which you wish to work, your next step is to check your source drawing for accuracy. I cannot stress this step enough. To do this, tape the drawing to the drawing board using the T-Square to line up the drawing. You should select some line known to be parallel to the ground line as your reference line. I shall refer to any such line as a level line. Level lines are usually located in side or front views. Now use your dividers to spot-check the drawing for accuracy as a drawing per se, without consideration to checking for scale inaccuracies. These are some of the spot-checks I perform as a matter of rote. These checks apply equally to the entire drawing as well as to the individual components, such as the turret, driver's plate, side plates, etc. The following are basic and mandatory checks:

1. Is the width of the object the same in the top, front and rear views?
2. Is the height of the object the same in the front, rear and side views?
3. Is the length of the object the same in the side view(s) as in the top view?
4. Are the surfaces drawn as planes truly planes?

There is a quick and easy check for this often overlooked possible source of inaccuracy. Please refer to Figure 1, in which the top and side views of a plane (?) are given. Simply connect the diagonal corners (shown by dotted lines) in each view. Now project a vertical line from the intersection of the diagonals in the top view to the side view. If the projected line hits the intersection in the side view, you have verified the surface as a plane. If not, the drawing is inaccurate, and your best recourse is to consult a photograph and try to resolve the differences. By the way, good luck in this case! Note that Figure 1, (which illustrates this check) is really a true plane. You didn't really think that I'd make a mistake like that, did you?

We now come to three basic definitions, which I will use in this and future articles.

1. A PLANE SURFACE is one which shows as a surface



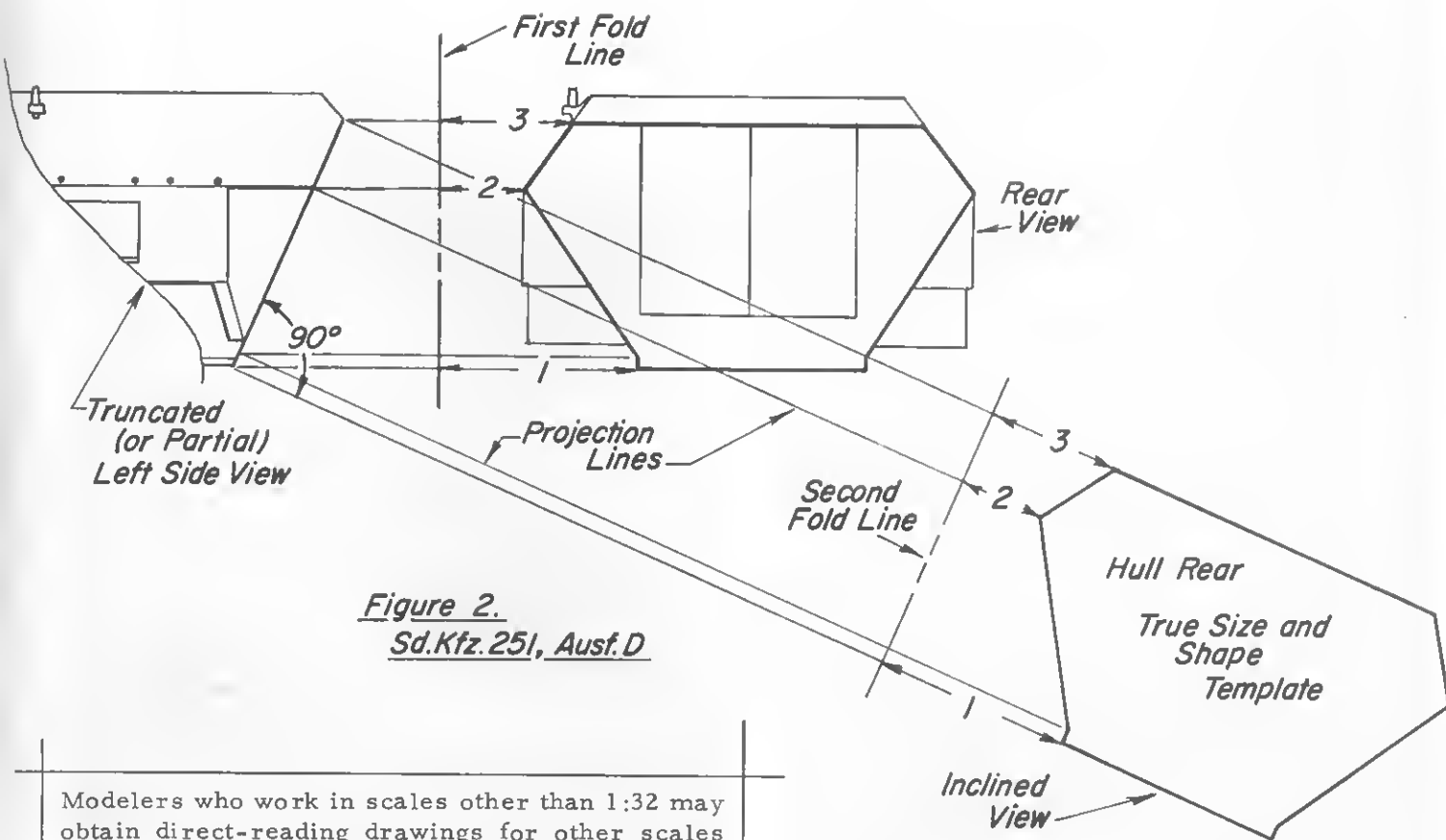
in one (1) view and as a vertical or horizontal edge in two (2) views. Furthermore, the view in which it shows as a surface shows it in its true size and shape. It can, therefore, be taken directly from the drawing for your template (provided that the scale is correct).

2. AN INCLINED SURFACE is one which shows as a surface in two (2) views and as an inclined edge in one (1) view. Those views which show this type of surface always show it shortened in one dimension only. The true size and shape of this type of surface will have to be developed as shown in Figure 2.

3. AN OBLIQUE SURFACE is one which never appears as an edge. It is this type of surface which requires the techniques of descriptive geometry to develop in its true size and shape.

Now for a couple of conventions and rules. When I speak of true size and shape, I am referring to true size in the scale of the source drawing. Next, if you reread the three definitions I gave for surfaces, you will notice that the only surface which will require descriptive geometry is an oblique surface, and that an oblique surface never appears as an edge. This brings us to a fundamental rule. Before any surface may be shown in its true size and shape, it must first be shown as an edge. The most difficult work in developing templates is encountered in working with oblique surfaces, and working with oblique surfaces revolves around this rule, so memorize and thoroughly understand it.

To see how this rule works, let's apply it to the three types of surfaces in order. First, the plane surface. Since the plane surface appears as either a



Modelers who work in scales other than 1:32 may obtain direct-reading drawings for other scales by obtaining photo-reductions of 1:32nd scale drawings. To obtain 1:35th scale drawings, reduce the drawings to 92% of the original size. In 1:48th scale, reduce the drawings to 67% of original size.

vertical or a horizontal edge in two (2) views, the view in which it appears as a surface shows it in its true size and shape. Therefore, to make a template from such a surface you only have to trace it directly from the source drawing. You will then rescale the tracing (if necessary).

Next we tackle drawing a template from an inclined surface... Refer back to the definition and you will see that it appears as an edge in only one view and that the edge is inclined, i.e., neither vertical or horizontal. Figure 2 depicts a truncated left side view and a partial rear view of a Hanomag Sd. Kfz. 251, Ausf. D in 1:32nd scale, taken from Vol. 2, No. 9 of this magazine. Note that the rear view shows the rear plate and doors of this vehicle. Recall that I said that an inclined surface is shown to be shortened in one dimension only. It is, therefore, correct in the other dimension. In Figure 2 for example, the width is correct and the height is shortened. Now examine the side view. The rear plate appears as an inclined edge in this view. The length of this edge is the true length of the surface. To put the two (2) correct dimensions together and to form the surface in true size and shape, you must follow these steps:

1. Draw projection lines between the side and rear views. These projection lines should be drawn from every point at which the edges outlining the surface in the rear view make a change in direction.
2. Between the two given views, draw a "fold line" perpendicular to the projection lines. This line is nothing more than a reference line from which (in this case width) measurements will be taken from the rear view.
3. Now, from each point at which the projection lines between the two views intersect the inclined edge, draw a projection line perpendicular to the inclined edge. The extreme pair of these projection lines (here numbered 1 and 3) give the true height of the rear plates.
4. Construct a second "fold line" perpendicular to these new projection lines, as in step 2 above. This fold line now becomes your reference line for width measurements in the view which gives the surface in its true size and shape. I shall refer to this view as an inclined view (sometimes called an "auxiliary view").
5. Now take out your dividers and measure along the projection lines between the side and rear views. These measurements should be taken from the fold line to the

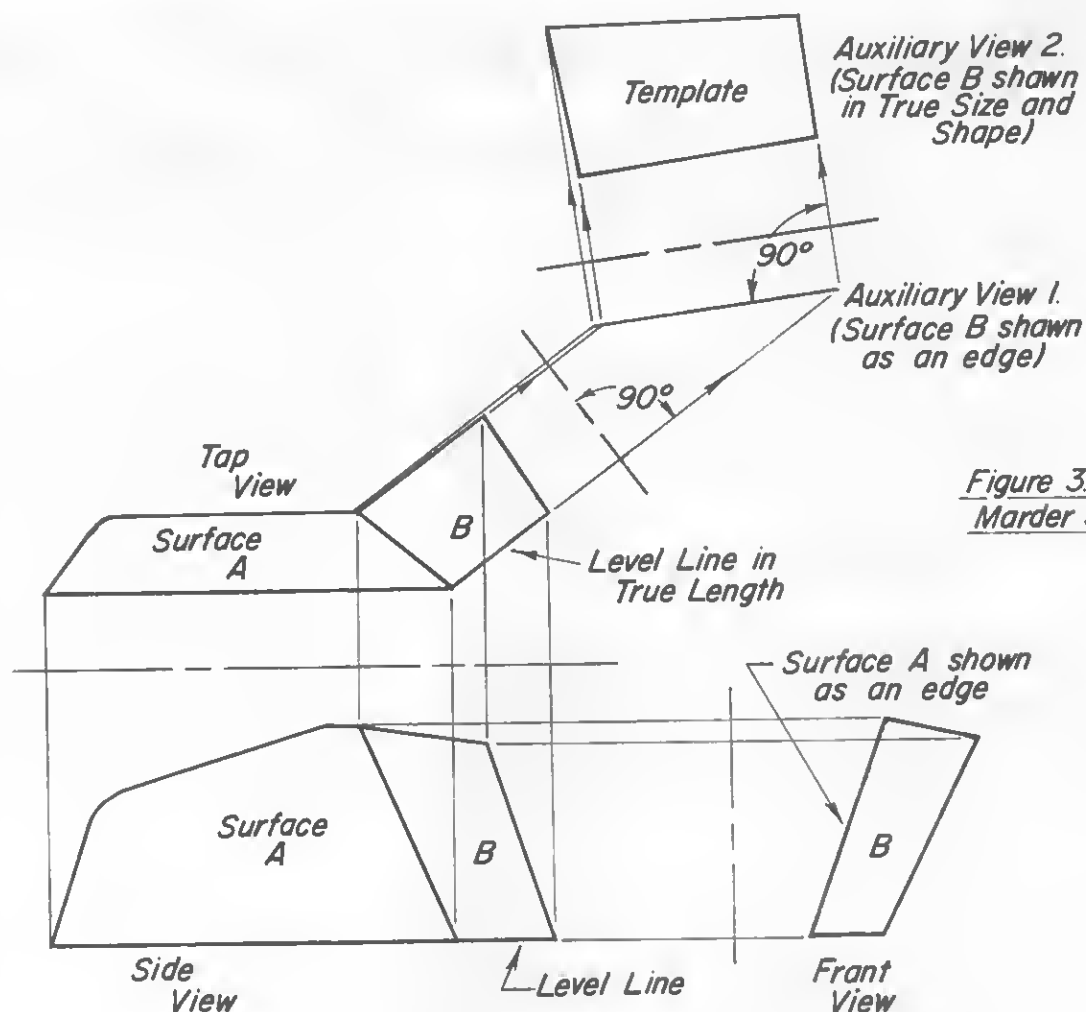


Figure 3.
Marder 38(t)

point being measured. Next, transfer this measurement (width) to the inclined view, again using the inclined view fold line as your reference point. Work with one point at a time and take your measurements from adjacent points, and then connect these two points forming a line. Continue this process until the entire surface is drawn in its true size and shape. Caution! Don't work with more than one line at a time and recheck your measurements at least one time. If you transfer your measurements in an unorganized fashion, sooner or later you'll end up with wrong points connected together and a strange-looking template. As you proceed to developing oblique surfaces, this scheme of working with one line at a time becomes even more critical. Keep it simple and orderly and you will avoid chaos.

Last, we come to the subject of developing templates from oblique surfaces. Since an oblique surface never appears in any of the normally-given views as an edge, and any surface must appear as an edge, it follows that the oblique surface must first be drawn as an edge. Once it is drawn as an edge, the technique used for inclined surfaces may be used to draw the oblique surface in its true size and shape. Please refer to Figure 3 at this point. Figure 3 shows partial right side, top and front views of the "Marder 38(t)" (Sd. Kfz. 138, Ausf. M) as it appeared in Vol. 3, No. 12 of AFV-G2. For those of you who have copies of this drawing, you may note that I have rearranged the layout of these partial views for convenience. This figure shows two surfaces; Surface A is an inclined surface, and Surface B is an oblique surface. As can be seen in the drawing, you will have to draw two (2) auxiliary views to get an oblique

surface into its true size and shape. To do this, follow the steps given below:

1. Draw a "level line" on the surface in either the front or the side view. In this example the bottom edge happens to be a "level line".

2. Project the "level line" onto the top view. This line projected onto the top view is now shown in its true length. Also, by definition, this true-length line lies on the surface to be developed. This brings us to another rule: Before any line can be shown as a point, it must first be shown in its true length. To understand why this rule is important, remember that the first step in developing an oblique surface is to draw it as an edge. Since this true-length line lies in the plane, it follows (from the theory which I won't discuss here) that if this line is projected as a point, then the plane will be projected as an edge.

3. Draw projection lines (from the view which shows the level line in its true length) parallel to this line and, as usual, draw a fold line perpendicular to these projection lines. Remember to draw a projection line from every point on the oblique surface. These projection lines and the fold line comprise what is labeled Auxiliary View 1. in Figure 3.

4. Next, take your measurements for Auxiliary View 1. from the side view, remembering to work with only one line at a time. Once you have completed this view, you should have one line which represents the plane as an edge. If such is not the case, one of three things is wrong. These possible sources of errors are:

a. You have incorrectly drawn one or more of the projection lines. or

b. You have incorrectly transferred one or more measurements. or

c. The oblique surface that you are trying to develop is not a true plane (remember that I warned you to check for this).

By now you may have noticed that auxiliary views form a link in a chain of three or more views and that the measurements used in the view being drawn were taken from the view two links back in the chain. This is an important point to remember as it will always remind you which view from which to take your measurements for the auxiliary view being drawn.

5. Now draw projection lines from the edge view perpendicular to the edge and add the fold line. You are now drawing Auxiliary View 2. Your measurements will be taken from the top view (two views back along the chain). Draw one line at a time until all edges of the surface have been drawn. If you have correctly followed the steps as I have outlined them, you now have a true size template. But don't sit back and admire your work. Go back and check your measurements one more time just to be sure.

All of the above sounds complicated, and I admit that it is if you've never done it before. After a

little practice, however, you'll find that the rules and instructions are easily remembered and that developing templates of inclined and oblique surfaces becomes almost as easy as tracing directly from the source drawing. As an exercise, may I suggest that you trace the two views from Figure 2 and the three views from Figure 3 onto a sheet of tracing paper. Once you've finished the development of the auxiliary views, compare the results with mine. Also note that Surface A in Figure 3 is an inclined surface. As a further exercise, you might try to develop a template for Surface A from the given views. What follows is a summary and a few tips about working with the templates once they have been drawn. Good luck and have fun.

SUMMARY AND FURTHER TIPS.

The following is a summary of the major points outlined in the above article and some additional tips to make your converting/scratch-built project a little easier:

1. Check your source drawing for accuracy.
 - a. Correctness as a technical drawing per se.
 - b. Are there scale inaccuracies and if so, can you correct them?
2. Is the source drawing in the scale you want? If not, how do you get them in the scale?
3. Is the set of source drawings laid out in such a manner that you can draw your projection lines directly from one related view to another? If not, you may have to cut-up the original set and paste them back together in an order which lends itself to drawing your projection lines as I did in Figure 3. Use your T-Square and triangles to line-up these views.
4. Organize your templates in logical sub-assemblies, both in the drawing, cutting and assembling thereof. An excellent guide for this grouping into logical sub-assemblies would be any of the Tamiya or Monogram plans as provided with the kits.
5. When cutting the plastic for any part from a template it is always better to cut a little on the large size as opposed to the small. I've learned through bitter experience that it's far easier to trim plastic than to try to add to it.
6. Once a sub-assembly is cut from the plastic, start checking it for a correct fit. One method of doing so is to tape the components together with Scotch brand tape (or the like).
7. Remember that templates are essentially two dimensional. They have no thickness, and sheet plastic does. This simply means that some of your parts will have to be trimmed slightly, or chamfered, or both, in order to get a good fit.

I have found that making your own templates from scale drawings is both rewarding and challenging. It definitely adds another dimension to your modeling ability, for you can now create scratch-built models with considerable ease.

AFV Inquiry: Brief Histories of U.S. Armored Divisions during World War II. (Continued from Page 13).

the Sieg river at Siegburg, the 13th pushed north to Bergisch Gladbach, then toward Duisburg and Mettmann by 18 April. Shifting south to Eschenau, the division prepared for Bavarian operations. Starting from Parsberg, 26 April, the 13th crossed the Regen and then the Danube rivers and secured the area near Dünzling. On the 28th, elements closed in on Prattling and crossed the Isar river. Moderate to heavy resistance was met during this drive through southern Germany. The division entered Braunau, Austria, 2 May and set up the command post in the house where Hitler was born. Preparations

were being made for further operations when the war in Europe ended. The 13th remained in Germany until 25 June and then left Le Havre, France for home, 14 July 1945. After arriving in the U.S. on 23 July, the division began to discharge its personnel. It was inactivated on 15 November 1945.

Well, we've run out of space. In the next issue, we'll continue with the brief histories of the remaining U.S. Army Armored Divisions of World War II.

COLOR 'N CAMOUFLAGE

The British Infantry Tank Mk. II "Matilda" by William Platz

The Infantry Tank Mk. II, more commonly known as the "Matilda", played a key role in most of the successful British operations of 1940 and 1941. Although few in numbers, the Matilda dominated the early battlefields as the German "Tiger" was to do later in the war; relying on its heavy armor to overcome all opposition.

One of the first units to employ the Matilda in combat was the 7th Battalion Royal Tank Regiment. The 7th RTR was one of the two infantry tank units with the B. E. F. in France and participated in the brief counter-attack at Arras. After Dunkirk, the battalion was re-equipped and sent to the Middle East, arriving in Egypt in September 1940. Here they were assembled and trained secretly for the assault on the Italian positions at Sidi Barrani. At this time, the 7th was at full strength with 50 Matildas and 7 Mk. VIB Light Tanks, organized into the Battalion Headquarters and "A", "B" and "D" Squadrons. (By long standing tradition, there was no "C" Sqn.)

The Battalion was to remain an independent formation under the command of Headquarters Western Desert Force - a corps level organization. Thus the vehicles bore no formation sign, nor were there Unit Serial Numbers displayed. In fact, there were relatively few markings on the 7th RTR's tanks, which were painted in the three-color banded pattern common to the 7th Armoured Division at the time. Our paint chip below illustrates the "Smoke Gray" color of this scheme.

The particular vehicle shown here is that of Major K. P. Harris, officer commanding "D" Squadron at the attack on Tobruk, January 22, 1941. Each Matilda in the battalion was provided with an individual name beginning with the 7th letter of the alphabet, "G". In this case, the name "Glenorchy" was painted in white, three-inch high lettering on the upper hull side. The only other marking on the vehicle was the War Department number, also in white, three-inch high lettering, and appearing on the turret side. The customary geometrical squadron markings were not displayed at this time, their place was taken by a system of color-coded pennants flown from the turret antenna. This system was changed periodically and the details of the system was specified in the operation orders and instructions for a particular action. Operation Instructions No. 4 for the 6th Australian Division, dated January 1, 1941, states that the squadron commanders of the accompanying tanks will fly two yellow pennants during the assault on Bardia; however, in the Tobruk attack, Major Harris' tank flew a single red pennant. This apparent contradiction is explained by the fact that only 16 tanks participated in the

Tobruk attack organized as a composite squadron with Harris in command of the first troop.

By the summer of 1942, the Matilda was being replaced by the Valentine as the principal infantry tank of the British army. However, while the changeover was being completed, a number of Matildas remained in service. Most of these were Close Support (CS) variants, since there were no Valentine CS models available; but a few two-pounder Matildas were also on hand, and our second vehicle was one of these.

"BADGER" was attached to the Headquarters Troop of "B" Squadron, 50th Battalion Royal Tank Regiment, 23rd Armoured Brigade, 8th Armoured Division while that unit was stationed in the United Kingdom during early 1942. The tank was painted in the standard camouflage pattern in use in England - "Light Stone" (or Earth Brown) and Dark Green applied as shown in the illustrations - and was marked with a complete set of tactical markings.

First of these was the 8th Armoured Division formation sign. This consisted of a black 4" square outlined with a narrow band of white or pale yellow. Superimposed on the square was a bright green circle with the letters "GO" in black, as in a traffic signal. This insignia was later modified by the omission of the black background square, leaving just the green circle edged with yellow. The 23rd Armoured Brigade continued to use this formation sign after the division was broken up, until November 1942. This sign was painted on the left hull front and rear as shown.

The Unit Serial Number, a white "53" on a 5" square red arm-of-service flash, indicated that the vehicle belonged to the third senior regiment of the senior armoured brigade - i. e. the 50th RTR. (The other two regiments in the 23rd Armoured Brigade were the 40th RTR and the 46th RTR.) This badge was painted on the right hull front and rear, as shown.

Between the formation sign and the unit serial number on the hull front appeared the vehicle's name - "Badger". Although most of the 50th RTR's tanks took names beginning with the battalion's letter "R" (e. g. Retort, Redoubtable, Repulse, etc.), the various Squadron Headquarters used their own Squadron letter names. The vehicle name on the Matilda was painted in white-three-inch high letters.

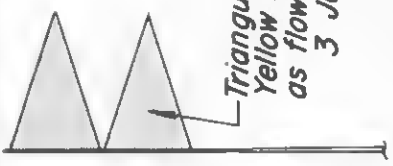
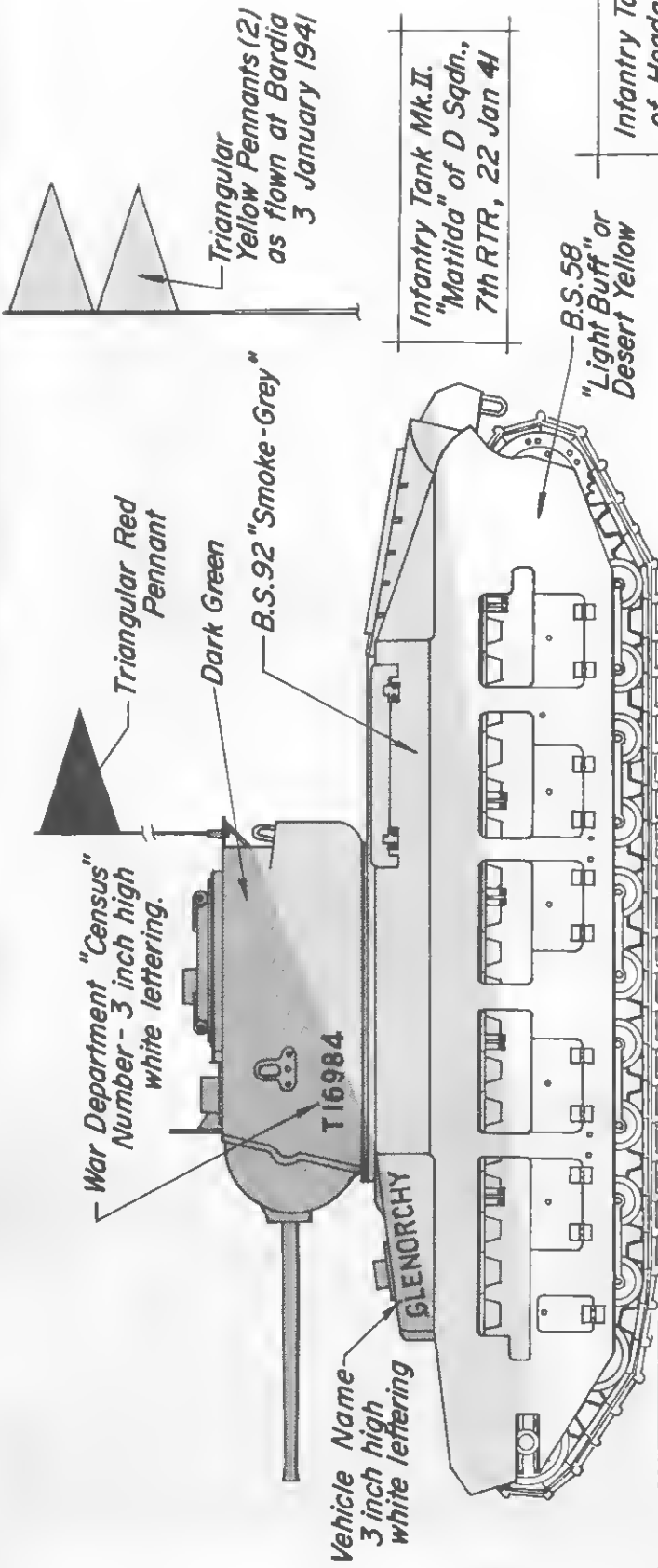
On each side of the turret was the Squadron Marking. On the Matilda, this took the form of an outline blue square with the blue letters "HQ" in the center, indicating a vehicle of the Headquarters Troop of "B" Squadron. The blue color of this marking also served to identify the 50th RTR as the third senior unit in the 23rd Armoured Brigade.

The final marking appearing on the vehicle was the War Department number, T6811. This was painted in white lettering, three-inches high. It was located on both sides of the tank, on the upper angled surface of the hull superstructure.

Although under-gunned by contemporary standards, and not equipped with a high-explosive shell capable of destroying anti-infantry targets, the Matilda was amply provided with thick armor which was proof against most enemy armor and anti-tank guns.

BRITISH "SMOKE GRAY"
18 pts Floquil RR51 Light Blue
6 pts Floquil RR12 Reefer Gray
1 pt Floquil RR13 Grimy Black



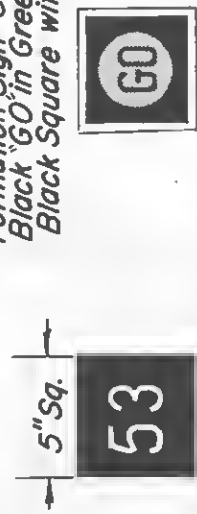


Infantry Tank Mk.II.
"Matilda" of D Sqdn.,
7th RTR, 22 Jan 41

B.S.58
"Light Buff" or
Desert Yellow

Infantry Tank Mk.II. "Matilda"
of Headquarters Troop, B
Squadron, 50th RTR, in
England during 1941.

Formation Sign - 8th Arm'd Div.
Black "GO" in Green Circle on
Black Square with thin white
or yellow outline.



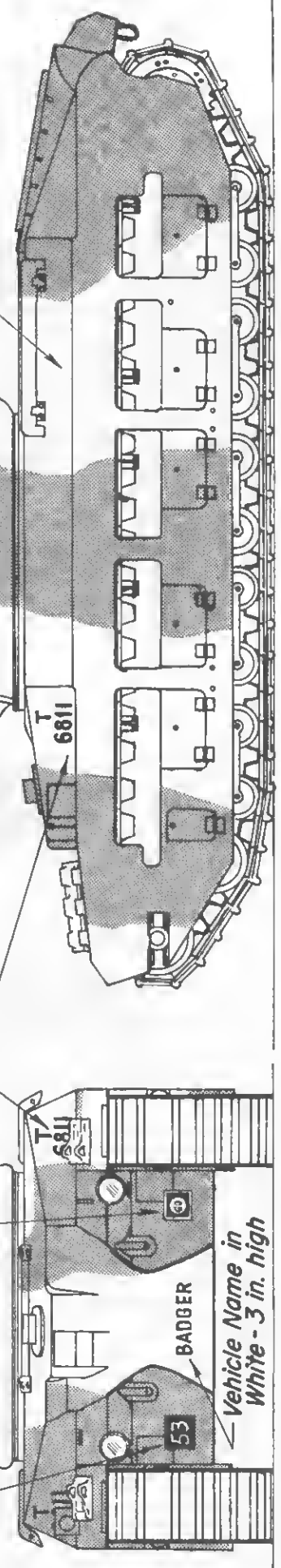
Arm-of-Service
Flash: Red with
White Numbers

War Department
"Census" Number
3 in. high white letters

Squadron and Troop
Marking in Blue.

Dark Green

B.S.61 "Light Stone"



The U.S. Army Mechanized Cavalry Reconnaissance Troop of 1940

- 28 -

by William Platz



In 1940, the United States Army was recovering from twenty years of less-than-benign neglect. By June it's ranks had swollen to 269,000 men, and by September the new draft law was signed. Appropriations were up and new equipment was being sought. At the same time, the army was in the process of a major reorganization. The "Square" Division (composed of two brigades of two regiments each) was being replaced in the regular army by the new "Triangular" concept of three independent regiments with supporting troops. Mechanization was in full-swing and the new Infantry Division was to have sufficient motor transport to move 1/3 of its strength by truck. It was also provided with a fully-mechanized Cavalry Reconnaissance Troop.

A company-sized unit, the Reconnaissance Troop was assigned the traditional duties of the horse cavalry - scouting, screening and security. In the advance, the troop was to proceed the main body of troops by a three hour interval along the axis of advance. Close reconnaissance of the route was to be made, checking for enemy roadblocks and small bodies of hostile troops which might impede the main body. Combat was to be avoided if possible, and the information gathered was to be coordinated with data from observation aircraft and adjoining formations. In addition to information on the enemy's presence and disposition, the troop was expected to provide the division commander with details on the terrain and road conditions.

During a withdrawal, the troop provided a rear guard and screening force, making maximum use of its mobility and the firepower of its 48 machine guns. The normal methods of screening involved ambush and flanking attacks-by-fire with the automatic weapons firing from the vehicles, an uncommon practice in the U.S. Army although used by German Panzer-Grenadiers.

In the defense, the unit continued aggressive patrolling to secure information on hostile forces and intentions. Additionally, the troop was frequently employed for headquarters security or as a part of the divisional reserve. Again, the mobility provided by the troop's scout cars was relied-on for a quick response to emergency situations; however, it was often necessary to supplement the unit's rather limited strength with

additional heavy weapons.

In each case, the basic tactical unit of the troop was the Reconnaissance Platoon. There were three of these and each was composed of two Scout Car Sections and a Motorcycle Squad. Each Scout Car Section had two White M3A1 scout cars and one motorcycle. The Platoon Leader, usually a 2nd Lieutenant, commanded the 1st Section and the Platoon Sergeant was in charge of the second. Another Sergeant commanded the 6-man Motorcycle Squad which was equipped with two "tricycles" - the standard motorcycle fitted with a sidecar. (These were later replaced with Jeeps, as the Jeeps entered service.)

Each Scout Car mounted two .30 caliber water cooled machine guns and a .50 caliber "anti-tank" gun (otherwise known as a .50 caliber machine gun). All were mounted on a railing which ran around the inside of the fighting compartment, and each had full traverse as well as being able to slide along the railing. Tripods for these weapons were carried on the rear of the vehicle so that the weapons could be dismounted for use on the ground. The crew's personal weapons included one Thompson .45 caliber Sub-machine Gun, two .30 caliber Rifles (listed in the TO&E as M1903 types, but being replaced by the new M1 as available), and six .45 caliber pistols, which, with the machine guns, provided an impressive amount of firepower. The motorcycle rider was also armed with a SMG as well as a pistol.

The Motorcycle Squad was employed principally for dismounted scouting and was armed with four Rifles and two Thompson SMG's. Their weapons were carried in leather "boots" attached to the sidecar combinations (see photograph below).

When on road patrol, the platoon traveled in extended column formation. The point car was followed by the Platoon Leader's car with the motorcycle messenger bringing-up the rear of the section. The second section followed behind the first within supporting distance and in a similar formation. The motorcycle squad took position at the discretion of the Platoon Leader, either in the rear or as a connecting-file between the scout car sections. When crossing open terrain or moving cross-country, the platoon moved in two separate



U.S. ARMY CAVALRY RECONNAISSANCE TROOP (MECH.)
INFANTRY DIVISION, 1940-1943

TO & E 2-27(Inf.), dated 1 April 1940

HEADQUARTERS SECTION



1 1st.Lt. Exec. Officer
 2 EM Clerks
 1 EM Driver

1 NCO Commander (R)
 1 EM Rifleman (R)
 1 EM Driver (SMG)

1 Capt. Troop Commander
 3 EM Gunners
 1 EM Radioman
 1 EM Driver (SMG)



1 EM Mess-
enger (SMG)

1 EM Mess-
enger (SMG)

1 EM Mess-
enger (SMG)

1 EM Mess-
enger (SMG)

1 EM Messenger
(SMG)



Scout Section



1 NCO Car Commander
 3 EM Gunners
 1 EM Radioman
 1 EM Driver (SMG)

1 NCO Section Leader
 3 EM Gunners
 1 EM Radioman
 1 EM Driver (SMG)

1 EM Messenger
(SMG)



1 NCO Mess Sergeant
 3 EM Cooks
 1 EM Driver

1 EM Clerk
 1 EM Driver

1 NCO Supply Sergeant
 1 EM Driver

FIRST RECONNAISSANCE PLATOON



1st Scout Cor Section



1 NCO Car Commander (R)
 1 EM Gunner
 1 EM Asst. Gunner
 1 EM Radioman
 1 EM Rifleman-Scout (R)
 1 EM Driver (SMG)

1 Lt. Platoon Leader
 1 EM Gunner
 1 EM Asst. Gunner
 1 EM Radioman
 1 EM Rifleman-Scout (R)
 1 EM Driver (SMG)

1 EM Messenger
(SMG)

2nd Scout Car Section



M3A1



M3A1



1 NCO Car Commander (R)
1 EM Gunner
1 EM Asst. Gunner
1 EM Radioman
1 EM Rifleman-Scout (R)
1 EM Driver (SMG)

1 NCO Platoon Sergeant
1 EM Gunner
1 EM Asst. Gunner
1 EM Radioman
1 EM Rifleman-Scout (R)
1 EM Driver (SMG)

1 EM Messenger (SMG)



Motorcycle Squad

2 EM Riflemen (R)
1 EM Driver (SMG)

1 NCO Squad Leader (R)
1 EM Rifleman (R)
1 EM Driver (SMG)

SECOND and THIRD RECONNAISSANCE PLATOONS are identical to FIRST RECONNAISSANCE PLATOON.

MOTOR MAINTENANCE SECTION



1 EM Mechanic
1 EM Driver



1/2-T Wpns. Car.

1 NCO Motor Sgt.
1 EM Mechanic
1 EM Driver



M3A1

1 Lt. Maintenance Off.
3 EM Gunners
1 EM Radioman
1 EM Driver (SMG)

Note: All personnel are armed with .45 caliber pistols in addition to the listed weapons.

parallel columns within visual range of each other. Communications between the various elements of the platoon and troop headquarters was maintained by means of SCR-193A radio sets mounted in each scout car, and by motorcycle dispatch riders.

The troop headquarters was divided into two components - the command/administrative section and the motor maintenance section. The headquarters section provided the trained personnel who assembled and evaluated the data gathered by the reconnaissance platoons. The three scout cars of the headquarters section could also be used as a slender reserve to support one of the recon-platoons in case of emergency. Communications, however, was the section's most important function, and this was maintained both by radio (there was a SCR-193A in each scout car) and by a staff of six motorcycle dispatch riders. The troop's administrative

personnel were carried in a 1/2-ton command car and a motorcycle combination, while three 2-1/2-ton trucks provided the organic supply transport. Of the latter, one carried ammunition and combat stores and was armed with a .50 caliber machine gun (for anti-aircraft protection). The second "deuce-and-a-half" was loaded with gasoline and oil, and the third truck carried the unit's field kitchen.

The Motor Maintenance Section was composed of the Maintenance Officer and ten enlisted mechanics. They had the critically important function of keeping the unit's vehicles running, and were provided with a maintenance truck, a 1/2-ton pick-up truck (later changed to a weapons carrier) and, for protection and communications, a scout car. The section personnel were armed only with pistols, except for the crew of the M3A1.

- Continued on Page 32 -

Historian's Notebook

by William Platz

One of the most-often received questions here at AFV-G2 is: "Where do you get the information for your articles?" And while it is a cardinal rule of the journalist never to reveal his sources, now is a good time to break with traditions. Finding information on any historical subject is 10% looking and 90% knowing where to look; and where you look depends heavily on what type of information you are seeking.

The first step in any research project is a search of the largest available library(ies). In Southern California, this means the Main Branch of the Los Angeles Public Library and/or the Research Library at U. C. L. A. Here, the card catalog and periodical index should be checked thoroughly, using as many different subject headings as possible. Frequently, these sources have not been as carefully cross-indexed as the librarians maintain, and I have been pleasantly surprised on more than one occasion to find World War II vintage technical manuals tucked-away in the Military Science Section.

If you are incredibly lucky, you may find all you need right there at the library, but chances are that the best sources - original documents, unit diaries, etc. - will not be available there. The next step is a letter-writing campaign. If you are looking for specific technical information or details, a letter to one of the service museums may prove helpful. These include the U. S. Army Ordnance Museum at Aberdeen Proving Ground, Maryland, the Royal Armoured Corps Tank Museum, Bovington Camp, Dorset, England, the Imperial War Museum, Lambeth Road, London S. E. 1, England, and many more. However, it must be remembered that each of these institutions has a rather limited staff and time, and you cannot expect them to do your research for you. At best, they can provide some specific answers to carefully selected questions, - provided you're lucky enough to spark the interest of a staff member. Otherwise, you will probably receive the names (and addresses) of a few reference sources to check further. The staff of AFV-G2 magazine will try to assist in research, through articles, photos and data that we receive requests to publish... however, it should be stressed that our backlog of questions and the sheer amount of necessary research puts us in the same category as the museum staffs, ie. understaffed and overworked.

If all else fails, there is the ultimate source (!) - the U. S. National Archives. Here lie a large number of juicy tid-bits that are genuinely useful. The problem is, first, locating what you want, and second, making use of it. Here are located the records and documents captured from the Germans; a great many U. S. military manuals, tables of organization, unit histories, ship's logs, etc. - in short, a historian's paradise, but with its own peculiar serpent too. The very volume of information makes locating anything a most lengthy process. A good portion of the data has been reproduced on microfilm and is available to the general public at minimal cost (which should not be construed as "cheap", since the cost of microfilming documents is quite high); but in order to purchase the complete Battle Diary (*Kriegstagebuch*) of the *Afrikkakorps*, it is necessary to know the numbers of the rolls of film that contain it. To learn these numbers, it is necessary to once again return to a major library, where you can (hopefully) find a multiple-volume publication titled the "Guide to Captured War Records..." (Guides). We do not suggest that you write to National Archives trying to obtain a set of these volumes; first of all, the cost of reproducing the Guides is quite high and secondly, the National Archives did not intend to provide copies to every individual that requests the same.... go to a major research library instead. The Guides will list the available rolls of microfilm, with a rough and very approximate listing of the contents of each roll, and the price of the roll. Like everything else, prices for microfilm have gone-up and most price lists in the Guides should be regarded with suspicion. Once you have located the roll numbers of the rolls that contain the material that you need, you can send off an order (with a check) and then chew your knuckles for two or three months while the order is processed and shipped.

There are a number of real drawbacks to ordering materials from National Archives. In the first place, you can never really be sure of what you are getting until it arrives; and it is sometimes difficult to maintain historical objectivity when your hard-earned cash has just purchased 300 pages

- Continued on Page 32 -

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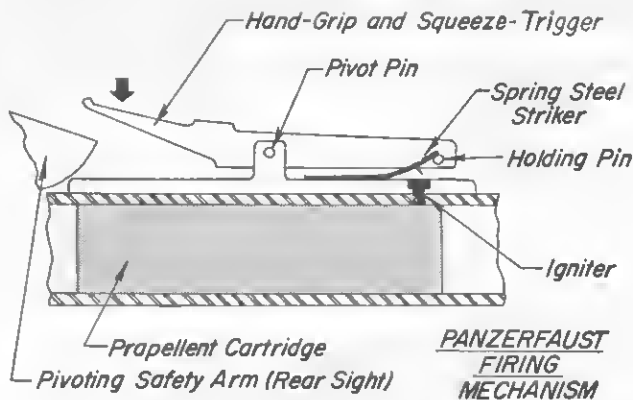
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Men Against Tanks.....The Panzerfaust....(Continued from Page 12)



Of course, getting too close to a target also presented problems, as the explosion and resulting fragments sometimes caused more fear to the infantryman than did the back-blast and fuzing troubles. When we fired a Panzerfaust, no one stayed above cover to watch where the grenade went! As an example, I had a Sergeant in my unit who gained a Wound Badge by being hit by shrapnel from his own Panzerfaust; he had exposed himself to get a better shot, and as a result, he paid a price.....

Another popular way to use the Panzerfaust was as a "trap". The weapon could easily be emplaced to cover logical routes of approach, and it could be fired by using trip wires, pressure plates, etc. In this manner, we could destroy enemy tanks after we had retreated from an area, and I can only guess at the results. I should mention that we left a good many Panzerfausts in strategic places when we pulled back, and I can imagine that some were effective. If we could destroy a tank with a Panzerfaust, the effort was worthwhile....remember that a tank cost a good deal of money and was a potent weapon. Panzerfausts, on the other hand, were cheap, simple to use, and very much feared by the enemy.....

Special thanks in writing this article go to Col. G. B. Jarrett, Ret'd. for his assistance in providing information and the photograph.

The U.S. Army Cavalry Reconnaissance Troop of 1940 (Cont'd from Page 30)

In all, the troop had a strength of 6 officers and 141 enlisted men transported in 51 vehicles. A light, mobile and compact formation, the Cavalry Reconnaissance Troop, Mechanized was perhaps stretched a bit thin when required to cover a divisional front. However, its greatest weakness was the lack of an effective anti-tank gun. While the .50 caliber machine guns were supposed to fill this need, by 1940 they were inadequate. Likewise, the M3A1 White Scout Car was far less suitable for their role than such contemporaries as the German Sd. Kfz. 222 or British Humber armored cars. Nevertheless, it was a step in the right direction, and with the arrival of the M8 armored car and a modified organization (to be covered in a later article), American reconnaissance units were to prove themselves effective in Italy and in Western Europe after 1943.

SOURCES: Primary:

U. S. Army, Table of Organization and Equipment (TO&E) 2-27 (Inf), 1 Apr 40 ----, "Tactics of the Cavalry Reconnaissance Troop, Mechanized, Infantry Division"; in The Mailing List, Vol. XXII, July 1941; U. S. Army Infantry School, Ft. Benning, GA.

Secondary:

Penfield, Thomas, Guardians of America, Rand McNally & Co., Chicago, 1941

Historian's Notebook (Continued from Page 31)

of Morning Muster Reports for the Reichstag Security Detachment. Secondly, if you order German documents, remember that they are written in German, and are totally useless unless you speak the language and have a background of technical and military terms. (The author's 32 college units in the language are frequently far from sufficient in this regard.) And lastly, if you do not own or have access to a microfilm reader, then it is senseless to order the material. But, the "goodies" are there, and all it takes to find them is a little luck, a lot of patience, time enough to look for them, the ability to recognize what you find, and sufficient cash to pay for the material (either in microfilm rolls or to "feed" the xerox machine).

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3. The Game and Scenarios:

This is a five-in-one game. You may play the entire campaign game or one of the four mini-games, a la' Anzio. A complete and comprehensive order of battle and set of victory conditions is given for each of these games. What I propose to give now is a brief synopsis of each of these games. I will not make any comments regarding tactics, how to win, or any opinions of the sort that one is accustomed to seeing in game reviews. I leave it to the individual players to find out for themselves optimal strategies, etc.....

The campaign game covers the period from September '40 until December '42 at the rate of three turns per month (!) and (if played the full amount) lasts 84 turns. Don't plan on this one being played in one evening unless one of the players is either horribly inept or unlucky. The order of appearance chart clearly indicates arrivals and withdrawals of troops, supplies and those turns when one side or the other has air superiority. Before you tackle the campaign game, you should familiarize yourself with the mechanics of play by playing all of the mini-games. These are given below in the chronological order of that portion of the North African campaign that they are intended to simulate.....

First we have "O'Connor's Gallop" which lasts from September '40 until December '41 and consists of 15 game turns. As the name suggests, the mini-game portrays General O'Connor's sweep through the Italian Army in Libya. The second of these is entitled "Rommel's Romp" and simulates the period lasting from the end of April '41 until the end of June '41 and lasts 10 turns. This one recreates the arrival of Rommel onto the scene in North Africa, and unlike the title, Rommel doesn't always romp. The third of the mini-games is named "Crusader Rides Again". The simulated time period is from the beginning of November '41 until the end of February '42. The number of game turns is 12 and this mini- is intended to represent Operation "Crusader", the abortive British attack.....

The fourth and last of the mini-games is named "Gazala Grind". The time frame is from the beginning of May '42 through the end of June '42, and the game length of 6 turns. This is the period of the second attack on Tobruk when Rommel finally captured this vital city/port. I am going to make one suggestion for a rules change in the playing of this game. If the optional fort rule is being used, consider the Axis player to have received supply on the May 1st turn for the purposes of allowing his armored units full movement. The reason is as follows: One of the rules on movements states that: "In game turns in which the Axis DO NOT receive a supply unit, movement of all armored, armored-infantry and reconnaissance units is halved," If the Axis player is so restricted on the first turn of this mini, he can't win unless his luck is such that he would be better-off making a living by gambling in Las Vegas. Even with this proposed rule change in effect, this game is very close. Without it, always try to be the Allied player and give odds on the outcome.....

In conclusion, let me say that if colorful packaging is one of the main things you look for in a game, forget this one. If, on the other hand, you are looking for a game that is playable, fairly accurate in the historical sense, and generally well balanced, then send your \$5.00 (plus 50¢ for postage and handling) to Mr. Sperry. We think you'll enjoy the game. Good luck and good gaming.....

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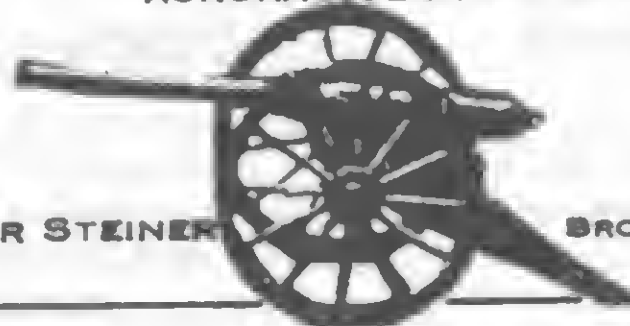
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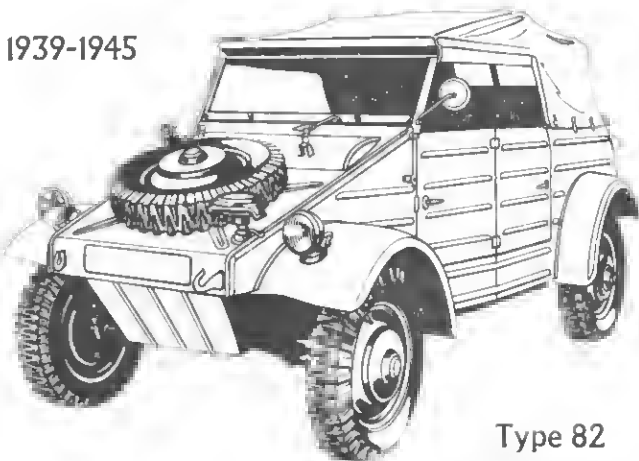
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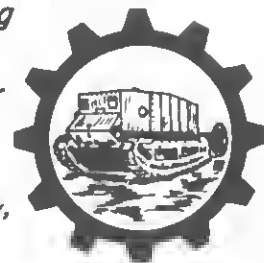
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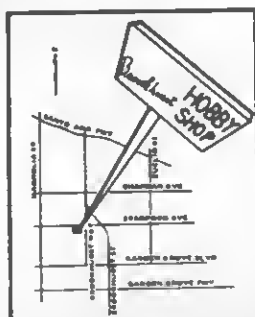
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